a. 5028.

THE Art of Painting In OYL.

Wherein is included each particular Circumstance relating to the best and most approved Rules for preparing, mixing, and working of Oyl Colours.

The whole Treatise being so full Compleat, and so exactly fitted to the meanest Capacity, that all Persons whatsoever, may be able by these Directions, to paint in Oyl-Colours all manner of Timber-work; that require either Use, Beauty, or Preservation, from the violence or Injury of the Weather.

In which is also laid down, all the several Circumstances required in Painting of Sun-Dials, Printed Pictures, Sash-Windows, &c. In Oily-Colours.

The Fourth Impression with some Alterations, and many Matters added, which are not to be found in the Three former Editions.

To which is now added, The whole Art and Mystery of Colouring Maps, and other Prints, with Water Colours.

By JOHN SMITH, C. M.

LICENSED, *Rob. Midgely.*

LONDON:

Printed for *Samuel Crouch*, at the Corner of *Popes-Head-Ally* in *Cornhill*, 1705.

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To the READER.

Reader,

THE three former Impreſſions of this Work having given very good ſatisfaction to ſeveral ingenious perſons that were deſirous of ſome Inſtructions in this matter, and the Books being all ſold off, and a fourth Impreſſion intended, I was deſired to take ſome more pains to view and correct the Work, and to add ſuch things as might be found wanting, to make it compleat; which I hope I have done, to the ſatisfaction of all that ſhall peruſe this laſt Edition, there being not wanting in it any one material circumſtance that is requiſite to a work of this nature.

I ſuppoſe no Man will judge, that this Book is deſigned any ways to inſtruct thoſe that are profeſſed Painters, whoſe knowledge in theſe affairs muſt be ſuppoſed to out-ſtrip theſe firſt Rudiments of this their own profeſſion; no, the chief deſign of this work, is only to inſtruct other ingenious perſons, who are deſirous of ſome

insight into the nature of working in Oyl Colours.

Besides this, the Gentry that live far remote from great Cities, where Painters usually reside, may sometimes have occasion to play the good Husband, in preserving such Ornaments of their Habitations, as are most exposed to the violence of Rain and Wet; there being less trouble in the preserving what is already made, than in making new: When a Gentleman therefore has been at the Charge of fitting his Habitation with good Doors and Gates, has fenced it about with Palisadoes, and adorned his Garden Beds with Borders, and erected Seats and Arbours to rest in, and such like; it will be easie then for some of his Servants, by the Directions here given, to be able to colour over and Paint, these, or any other kinds of Timber Work in Oyl Colours.

In Painting of Sun-Dials, I have been very particular, for this reason, that there being many Books extant that teach the way of drawing Dials, and many Gentlemen are very expert therein, but yet few or none are able to paint their Dial on a Plain when they have drawn the Draught;

Draught; therefore I thought it not time ill ſpent, to ſet down the ſeveral material particulars relating to that work; not doubting but all Perſons that are Lovers of Art, will add this piece to that part of their Library that relates to Dialling.

In the whole Work, I have been careful to relate only matter of Fact, and ſet down ſuch Rules and Obſervations, as by Experience my ſelf hath found to be true, avoiding altogether things ſpeculative, or what is only known by hear ſay; and therefore as to all the particulars of it, the Reader may rely upon them as true and certain; the ſtile I confeſs is mechanick and plain, but I conſider that Diſcouſes of this nature require not Eloquence to perſwade; Knowledge being beſt communicated by clear and ſignificant Expreſſions; and in this I have done my endeavour; and for the reſt, if any ſhall take exception, I have this only to ſay, that my aim in it has been more for the Profit and Pleaſure of others, than my own Advantage.

All that I ſhall add is, that ſince this Treatiſe hath found ſo good Acceptance, I will proceed to publiſh a Work of another Nature,

To the READER.

Nature, containing a great number of particulars, of great use and advantage to most sorts of People, and such as relate to almost every Circumstance of human Life; all related with the greatest Faithfulness, Care, and Plainness, that each Particular is capable of: in the mean time, let us all be careful so far in our own Affairs, that while we strive to excel others in Knowledge, we fall not short of a Vertuous and a good Life: the end of all Science of this kind tends chiefly to a temporal Satisfaction; but he that also adds Vertue to his Knowledge, adds to the Felicities of this Life the Joys and Glories of the next World,

Farewel,

J. S.

THE

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THE

THE ART OF PAINTING.

CHAP. I.

An Account of the ſeveral Tools, or manual Utenſils, that are uſed in the Art of Painting.

THE firſt is the Grindſtone and Muller for grinding of Colours; the Stone muſt be a hard Rance, Marble, or ſome other of a cloſe grain, not ſpongy or full of ſmall Pores; for if the grain of the Stone be not cloſe, but hollow and ſpungy, the Colours that are firſt ground on it, cannot ſo well be

cleanſed off, but that ſome part will ſtill remain in theſe hollow Pores of the Stone, which will ſpoil the beauty and luſtre of thoſe other Colours that are ground after it: this Stone for grinding ought to be about a foot and half ſquare, and ſo thick, that its weight may be ſufficient to keep it faſt and ſteady, and not apt to be moved when Colours are grinding on it.

2. The Muller is a pebble Stone, of the form of an Egg, the bigger end of which is to be broken off, and with ſharp Sand or Emery, it muſt be ground ſmooth and flat on ſome other hard flat Stone; and the Eges of it muſt be well rounded off, that the Colours may the better ſlide under it when it is moved round: this Stone ought to be about two Inches Diameter, or three at moſt, on the flat end, and about five Inches high, that ſo you may command it the more eaſily in the time of grinding.

For want of a ſpotted Marble (which is a Stone of a haſle Colour, compact of a number of Kernels as it were in the Greet of it) you may make uſe of any kind of hard Marble, either white or black; ſome I have known to uſe a Slate,

ſuch

ſuch as in *Suſſex* they cover their Houſes with; ſome of which I have ſeen above two Foot ſquare, and an Inch and a half thick; which kind of Slates for vulgar Paintings may ſerve very well.

When a good ſhap't Stone for a Muller is wanting, a fragment of any ſmooth ſided Stone, cemented (with Roſen and Brick-duſt mixt together) into a piece of Wood of a fit ſhape to hold it by, has performed the work as well as the beſt Muller ſold in the Shops.

3. To theſe belong a Voider, being no other than a Lanthorn Horn, about three Inches one way and four the other; this Voider is to clear off the Colours from the Stone when ground, and alſo to keep them together in the time of grinding when it ſpreads too much.

For want of this, a ſmooth piece of Wood of the ſame ſize, cut thin and made very ſharp and even on the edge may ſerve as well.

4. Pots and Pans muſt alſo be provided, either of Earth or Tinn, of ſeveral ſizes, according to the quantity of Colours to be ground, into which they are ſtill to be put as you grind, till you have ground ſo much Colour of each

ſort, as may be neceſſary about the work you deſign them for.

But in Caſe you deſign to grind at one time ſo much of each Colour as may be ſufficient to ſerve your occaſions a long time together, as ſome do; then when you have ground of each ſo much as you think fit, let them be put up and tyed cloſe in Ox Bladders, or in the Bladders of Hogs or Sheep, according as your quantities are; this will preſerve them from drying or ſpoiling a long time together.

I remember I had a parcel of Colours given me in the Year 1661. by a Neighbouring Yeomen, that were, as he ſaid, left at his Houſe by a Trooper, that quartered there in the time of the Wars, about the Year 1644. This Man was by Profeſſion a Picture-Drawer, and his Colours were all tyed up in Bladders, according to the Method before preſcribed, and when I had opened them, I found them in a very good condition, and to my thinking as fit for uſe, when mixt with a little freſh Oyl, as if they had been but very lately ground, though they had remained in this condition about ſeventeen Years.

5. You must be also provided of Brushes and Pencils of all sorts and sizes; Brushes are always made of Hogs Bristles, they are of several sizes and shapes, some round, and others flat; the round ones are of all sizes, from two Inches Diameter to a quarter of an Inch; those of the largest size are for priming the Work, and for laying such Colours as are used in great quantities, and in Colouring over the superficies of all large Work, such as Posts, Pails, Wainscot, or such like: the smaller sort of Brushes are to use in such parts and places of any Work, as larger ones cannot well come to work in.

Flat Brushes are chiefly in use for drawing of Lines, and in imitating of Olive and Walnut Work.

6. As for Pencils, they are compounded of a finer and smaller Hair: these also are of several sizes, but all generally round, being for the most part fitted into Swans, Geese, or Ducks Quills, and from thence are termed Swans Quill, fitcht or pointed, Goose Quils, fitcht and pointed, Ducks Quills, fitcht and pointed; besides these, there are a larger sort of Pencils in Tin Cases, and some

in Stocks like Bruſhes, all made of the fine Hair.

In the choice of Bruſhes and Pencils, obſerve theſe rules: For Bruſhes, obſerve whether the Briſtles are faſt bound in the ſtocks, and the Hair ſtrong and lie cloſe together; for if they don't lie cloſe but ſprawl abroad, ſuch will never work well, and if they are not faſt bound in the ſtock, the Briſtles will come out when you are uſing them, and ſpoil your work; for ſuch I have ſeen where the looſe Hairs, from the Bruſh, have lain buried up and down in the Colours laid on, to the great diſparagement of the work: to prevent this, if they are not faſt bound, drive in ſome thin Wooden Wedges between the Thread with which they are bound round; and by thus doing the Briſtles will be made tite and ſecure.

In chuſing of Pencils, eſpecially the pointed ones, do thus; put them into your mouth, and moiſten them a little, then draw them forth between the Tongue and the Lip, and if they come out with an intire ſharp point, without cleaving in twain, they are good; provided alſo, they be thick and full ſet next the Quill, and alſo faſt bound; if they

they be thin and lean next the Quill, they never ſtand well to the work, nor draw ſharp and clever.

To every one of theſe Caſe, or Quill Pencils, let a neat ſtock be fitted, about nine Inches in length at the leaſt; for unleſs the Pencil be held a good diſtance from the hand, you ſhall never be able to command it well, nor work ſo neat, as when you have the true command of a Pencil, held thus at a large diſtance, your hand being ſupported, as is uſual, by a Ruler, or ſmall walking ſtick; one end of which you muſt hold in your left hand, and the other muſt reſt on the work, but yet ſo as not to do it any Injury.

7. If you have, at any time, occaſion to guild with Leaf gold, on an oyly ſize, according to the uſual practice of Painters, there does then belong to this work ſeveral diſtinct manual Tools: As firſt a Cuſhion upon which the Leaves of Gold muſt be laid, when they are to be cut into ſuch forms as fit the work you are to guild; this guilding Cuſhion, is generally made of a ſmooth grained Bazil Skin, the fleſh ſide outward, this is to be nailed to the edges of a ſquare wooden

bottom, about ſix Inches ſquare, and then well ſtuft out with Cotton or Wool, very hard, plain and flattiſh. Upon this guilding Cuſhion the Gold Leaves are to be laid, when you would cut them into ſuch ſcantlings as will beſt fit the work you deſign to guild.

8. The Inſtrument you make uſe of to cut the Leaves, muſt be either a ſharp ſmooth-edg'd Caſe-Knife, or elſe a ſlip of the hollow Spaniſh Cane, cut up to a ſmooth and ſharp edge with a good Pen-knife; this Cane-knife is counted the beſt, becauſe if well made, it will not only be very ſharp, but alſo cut the gold leaf more naturally than any other; for a Steel-Knife, though it cut very well, yet the gold will ſtick to't, and ſo give you much trouble to part the Leaf from it, except you are careful to keep the edge very dry by continually wiping of it with a clean and dry Cloth; whereas a Cane-Knife will put you to no ſuch trouble in the uſe of it, its ſubſtance being of ſuch a nature, as not to retain any viſcous or clammy matter, capable of making the Gold ſtick to it.

9. When by the uſe of theſe you have cut out the Leaves of Gold into pro-

proper ſcantlings, it muſt then be taken from off the Cuſhion, and laid down upon the work you are to guild; to perform which, if the work be flat and plain, you muſt uſe the guilding Pallat, 'tis only a flat piece of wood about three Inches long, and an Inch broad, upon which is to be glewed a piece of fine woolen Cloth of the ſame length and breadth; upon this Pallat do but breath with your Breath, that the Cloth may be made a little moiſt by it, then if you clap it down gently on the Gold that is cut out, it will ſtick to the Pallat, and may from thence be readily conveyed to the work you are to guild, and laid down on it; but this kind of Tool is only for flat and plain work, in which Caſe if you are to cover any large quantity of work, your Pallat may be as large as the whole Leaf of Gold, and ſo you may transfer them from the Book to the Work, without farther trouble of cutting into ſmall parts.

10. But if it be any hollow or carved work that is to be guilt, then Painters do uſually take up their Gold, either from the Book or Cuſhion, with a bunch of Cotton-Yarn, a little moiſtned with their

their breath; for Cotton is a material very apt and fit to preſs into the hollowneſs of the work, with the gold upon it; in caſe you want Cotton, a bunch of good fine Wool may do as well.

But if this Gold be to be laid on within the hollows of carved work, then you muſt uſe a fine Camils Hair Pencil, of ſuch a ſize as is ſutable, this, when moiſtned by breathing on it, will take up your leaf gold, and by the help thereof the gold may be laid in any hollow work.

Black lead Pencils are of ſo great uſe in drawing in ſome Caſes, that a Painter can very ill want them; as alſo good Chalk; the Chalk muſt be ſuch as is of a ſoft grain, that will eaſily ſpend it ſelf on the work you draw upon; if the Chalk be of a hard ſtony nature, it will ſpoil whatever you draw upon, for you muſt preſs ſo hard to make it ſpend its ſelf, that the work will be full of deep races, not to be after obliterated; a great damage to the beauty of the work.

11. For Black-lead Pencils; thoſe that are right good, are not eaſy to be gotten; therefore that you may not be deceived in the choice of them, take notice,

tice, that the beſt Black-lead Pencil, is that, that ſpends its Colour freely, and draws Black with an eaſy and light ſtroke, the goodneſs of the Lead may alſo be known by the grain of it; the beſt Lead if you ſhave off a little of it with a ſharp Knife, will appear ſmooth and ſhining as Glaſs, not hollow or ſpungy; that Lead that when cut appears not with a good glaſs, is of a dull Colour, and of a hollow ſpungy grain, is of little or no value, for the grain is ſo hard, it will never ſpend black, nor draw free.

Beſides this, the common Pencils of the Shops are made up ſo deceitfully, that they are not good Lead half way up the ſtock; the beſt way therefore is to buy Black-lead in the lump at the Colour-Shop, and with a fine Spring Saw, cut it into ſcantlings of the bigneſs of a Quill, into which you may fit it; and having faſtened it in with glue, it will be found much better and cheaper, than to buy them at the Shops.

12. Beſides all theſe before mentioned, there will be required, as neceſſary for Painting, Braſs Compaſſes, for ſetting out and proportioning your work; they alſo aſſiſt

assist you much in drawing all Figures that have a circular form; there is need also of Rulers of several lengths, as also Squares, Cruciples to burn Colours, and Bladders for Oyl.

The value of such of the forementiond particulars, as are to be bought ready fitted.

A marble Stone for grinding, according to its size and bulk, will cost from half a Crown to five Shillings the Stone.

A Muller will cost eighteen Pence, or two Shillings.

The largest Brushes will cost six Pence a piece, the other sizes from four Pence to one Penny a piece.

The largest sort of Pencils made with fine hair, either in Tin Cases, or in wooden stocks, from eight to two pence a piece; those inclosed in Swans Quills, a penny a piece, and others in Goose or Duks Quills are six pence a dozen, one with another, or a half-penny a piece.

Black lead Pencils, the best in Ceder Cases, will cost three pence a piece; but an Ounce of the finest Black lead in the lump, cut out as before directed, will do

do as much ſervice as any ſix Pencils which Ounce of Lead will coſt you about ſix pence, if it be prime good.

Braſs Compaſſes are from eighteen pence to ſix Shillings a pair, according to their ſize and goodneſs; a pair about eight Inches in the ſhank will coſt about two ſhillings ſix pence, a pair of the ſame ſize made with three points, *viz.* a ſteel point, a pen point, and a black-lead point, will coſt you, if well made, ſix ſhillings.

Cruciples will coſt you about two pence a piece, if they are large; the other ſizes are a penny a piece, and the ſmalleſt a half-penny.

Note, That a grinding Stone and Muller, and all kind of Pencils, are to be had at the Colour Shops; Braſs Compaſſes and Squares at the Mathematical Inſtrument-makers; and Cruciples you ſhall find plentiful at the Ironmongers in *Foſterlane*.

CHAP.

CHAP. II.

A Catalogue of the ſeveral Colours uſed in painting with Oyl; their nature and way of making.

WHITES.

THE principle of all Whites is the *White-lead*; this Colour ows its original to the common Plummers Lead, of which it is made; the manner is thus: At *Venice*, where they make the greateſt quantities, they take Sheet-lead, and having cut it into long and narrow ſlips, they make it up into Rouls, yet ſo as a ſmall diſtance remains between every ſpiral revolution; theſe Roulls they put into Earthen Pots, ſo ordered, that the Lead may not ſink down above half way or better in them; theſe Pots have each of them very ſharp Vinegar in the bottom, ſo full as almoſt to touch the Lead; when the Vinegar and Lead are both conveyed into the Pot, 'tis cover'd up cloſe, and ſo left for a certain time,

time, in which ſpace the corroſives fumes of the Vinegar will reduce the ſuperficies of the Lead into a white Calx, which they ſeparate by knocking upon it with a Hammar: A more particular Deſcription of the whole Proceſs you may find communicated to the Royal Society, by Sir *Philberto Vernatti*, and Printed in the Philoſophical Tranſactions.

Of this Colour there is two ſorts at the Colour Shop, the one called Ceruſe, which is the moſt pure and clean part, the other is called by the plain name of white Lead; they are Colours that work with very much eaſe, and will be ground as fine even as the Oyl it ſelf, in compariſon, if you will take time enough in the grinding; it lies very ſmooth, and binds very hard, on what work ſoever it be laid on. If you paint with it any kind of Timber work or Stone, that you would preſerve from the weather, it is beſt to work it in Linſed Oyl, for that will bind it extream hard, if you lay it upon the work very ſtiff; but if you uſe White lead alone within Doors, 'tis then beſt to mix it with drying Nut Oyl, for Linſed Oyl within Doors will turn Yellow,

low, and ſpoil the beauty of it; which inconvenience Walnut-Oyl made to dry prevents; for that makes it keep a conſtant whiteneſs.

Beſides White-Lead and Cerus there is another ſort to be met with ſometimes at the Colour Shops, which they call Flake-white, which is by ſome accounted the beſt white of all others, but the reaſon of that I don't well underſtand, except it be, becauſe it is ſcarce and dear; this Colour is ſaid to be found only under the Lead of ſome very old Buildings, where time has by the aſſiſtance of ſome ſharp quality in the air, thus reduced the undermoſt ſuperficies of the Lead in this white Calx, which proves a very good White, but in my opinion not exceeding the beſt Cerus, which is as white as the other, and a great deal cheaper.

BLACKS.

Lamp black: This Colour is no other than a Soot raiſed from the roſeny and fat parts of Fir-Trees, it comes moſtly from the Northern Countreys, as *Sweden* and *Norway*; 'tis a Black that is

is more generally uſed than any other, becauſe of its plenty and cheapneſs, and proves a very good black for moſt uſes; 'tis of ſo fine a Body, that if tempered only with Linſed Oyl, it will ſerve to work with on moſt common occaſions without grinding, but thus uſed, 'twill require a long time to dry, unleſs you mix much drying Oyl with it; or, which is better, ſome Verdigreaſe finely ground, this and the drying Oyl together will make it dry in a little time: Some add alſo Oyl of Turpentine, and without theſe it will not dry in a long time; for in the ſubſtance of the Colour is contained a certain greaſy fatneſs that is an Enemy to drying, to remedy which, burning in the fire till it be red hot and ceaſe to ſmoke, will conſume that fatneſs, and then it will dry much ſooner; but when 'tis burnt it muſt then of neceſſity be ground with the Oyl, for elſe 'twill not work fine; for the Fire is of that nature, that it's apt to harden moſt Bodies that paſs through it; this Colour is uſually made up in ſmall Boxes and Barrels of Deal, of ſeveral ſizes, and ſo brought over to us.

Besides, this black, there is another sort of Black, and this is the soot of a Lamp; which I have heard very good Artists commend, as a much better Black for any use than the Lam-black, it being of a finer Body and brighter Colour; but I think not to be gotten in very great quantities, and therefore used only in very fine work.

Ivory-Black, is made of the Comb-makers Raspings, and other waste Fragments of Ivory; these are burnt or chared to a black Coal in a Cruciple close stopt up, this proves a very delicate Black when ground very fine; you have it at the Shops well prepared, and levegated or ground very fine with Water on a Marble-Stone, and then dryed in small Lumps; being thus prepared, 'tis the more easily ground in Oyl, with which it will lie with as smoth a Body, as most Colonrs do; but 'tis something dear, and therefore not used in any common Work.

Some use Willow-Charcoal; this if ground very fine, does in Oyl make a very good Black, but being not so easy to be gotten as the Lam-black, 'tis seldom used.

REDS.

Vermillion is the moſt delicate of all light Reds, being of it ſelf a perfect Scarlet Colour, 'tis made artificially out of Quickſilver and Brimſtone, in the manner following: Take ſix Ounces of Brimſtone and melt it in an Iron Ladle, then put two Pound of Quickſilver into a Shammy Leather, or double Linnen-Cloth, ſqueeze it from thence into the melted Brimſtone, ſtirring them in the mean time with a wooden Spatula, till they are well united, and when cold, beat the maſs into a Powder, and ſublime it in a glaſs Veſſel, with a ſtrong Fire, and it will ariſe into that red ſubſtance which we call artificial Cinaber, or Vermillion; the whole proceſs you may ſee more at large in *Lemery*'s Chymiſtry. This Colour is of a delicate fine Body, and if pains be beſtowed on it, 'twill grind as fine as the Oyl it ſelf; and then it makes a moſt excellent Colour: but if it be not ground very fine, the Glory of it will not appear, for it will look dull and work courſe; but if it be ground very fine, no Colour in the

World looks better, nor works ſmoother, nor bears a better body than Vermilion does, nor goes farther.

Lake, eſpecially the richeſt ſorts, is the beſt of all dark Reds, being a moſt pure Crimſon; 'tis a Colour that will grind very fine, and lies with a good Body, but there muſt be good ſtore of Pains taken with it in the grinding, for if it be not well and throughly ground, its Colour will want much of its glory, and beſides this, 'twill work with ſome difficulty, being apt to cling together like a Jelly, after 'tis laid on, juſt as you ſee warm Water does upon a greaſy Trencher, when 'tis waſhed in it; to prevent which, grind it well, and temper it as thin as you can well work it; of this Colour there be divers ſorts at the Colour-Shops, very different, ſome being of a more dead and pale Colour; 'tis made of the tincture of a Vegetable, that ſtains a red, but of what, or how done, I cannot as yet learn perfectly; only note, that the beſt ſorts come from *Venice* and *Florence*.

Red Lead is the lighteſt of all Reds now in uſe; 'tis a ſandy harſh Colour, and ſuch an one, as is not eaſily ground very

very fine, although you beſtow much labour on it; this Colour is made out of common Lead, by firſt reducing it to a Litharge, and that Litharge being afterward ground to Powder in a Mill, is afterward conveyed into a hot Furnice, for that purpoſe, where 'tis continually kept ſtirring with an Iron Rake, till it has attained to the Colour of a fine pale red; the whole proceſs you may ſee more at large in Mr, *Ray*'s Appendix to his Catalogue of hard Engliſh words. Note, that this, though it be a Sandy Colour, yet it bears a very good body in Oyl, and binds very faſt and firm, being alſo a quick dryer.

Spaniſh Brown, is a dark, dull red, of a Horſefleſh Colour, 'tis an Earth, it being dug out of the ground, but there is ſome of it of a Colour pleaſant enough to the Eye, conſidering the deepneſs of it: 'tis of great uſe among Painters, being generally uſed as the firſt and priming Colour, that they lay on upon any kind of timber-work, being cheap and plentiful, and a Colour that works well, if it be ground fine, as you may do with leſs labour than ſome better Colours do require; the beſt ſort is the deepeſt Co-

lour, and freeſt from Stones; the other ſorts are not ſo good to give a Colour to the Eye, but yet they ſerve as well as any others for a priming Colour, to ſeaſon the Wood to lay other Colours upon.

YELLOWS.

Yellow Oaker, is of two ſorts, one called Plain-Oaker, and the other Spruce Oaker, the one is much a lighter Colour than the other; 'tis a certain concret or ſtony ſubſtance, found among ſtiff Clays in divers parts of this Kingdom; but thoſe parts that contain moſt of it, is the *Shotover Hills* near *Oxford*, from whence moſt of the Yellow-Oaker, that is ſold in *England*, is dug out; 'tis a Colour, that with pains, will grind very fine, it bears an excellent body, and reſiſts the weather well.

Pink-Yellow, is the Tincture of a Vegetable, whoſe ſubſtance being reduced to a Muſclage, and after dryed, becomes a good light Yellow, a little inclining to a Green; 'tis a Colour that grinds very eaſy, and bears a good body.

Orpiment

Orpiment is that Colour that ſome call Yellow Arſenick; 'tis a good Colour for ſome uſes, but very troubleſome to grind, being a Mineral ſtony ſubſtance of a poyſonous nature; therefore take care that the fumes of it don't offend the Brain in the time of grinding.

Maſticote, is a good light Yellow for moſt uſes, eſpecially in making Greens, of which ſeveral ſorts may be framed out of this Colour, being mixt with Blues; 'tis a Colour that grinds fine, and bears a good body.

GREENS.

VERdigreaſe is the beſt and moſt uſeful Green of all otherrs; 'tis a Colour made out of Copper, being no other than the ruſt of that mettal promoted by the fumes of ſour Wine, and the rape of Grapes; the proceſs of which, as 'tis performed at *Montpelier* in *France* (where the beſt is ſaid to be made) as you may find in Mr. *Ray*'s Travels, *pag.* 454. 'Tis a delicate Green inclining to a Bluiſh, but with a little Pink-Yellow, it makes the delicateſt Graſs Green in the World; 'tis a Colour that will grind

very fine, but not without ſome pains; and when ground fine, it lies with a good body, and works well, at the Colour-Shops there is a ſort of it that they call diſtilled Verdigreaſe, being a ſort that is wholly purified from droſs and filth, of good uſe in fine work, but too dear in vulgar Painting.

Green Bice is a Colour of a ſandy nature, and therefore not much uſed; *Green Verditer* is alſo a ſandy Colour, neither of them bear any good body, and are ſeldom uſed, except in Landskip, where variety is required.

BLUES.

Blue Bice bears the beſt body of all bright Blues uſed in common work, but 'tis the paleſt in Colour, it works indifferent well, but inclines a little to be ſandy, therefore it requres good grinding, and that on a very hard ſtone; 'tis a Blue that lies beſt near the Eye of any now in uſe, except *Ultra-Marine*, a Colour produced from the Tincture of Lapis-Lazuli; the proceſs of doing which, you may find in a Book called, *Modern Curioſities*; but this is ſo vaſtly dear,

dear, that 'tis not to be uſed except in pieces of great price.

Blue Verditer is a Colour of no good body, but ſomething ſandy, and of no very good Colour of it ſelf, being apt to turn greeniſh, and being mix with Yellow, make a good Green.

Indigo is a dark Blue, if workt by it ſelf, to remedy which, whites are uſually mixt, and then it makes but a very faint Blue; this Colour is the tincture of a Vegetable called by that name, much growing in both the *Indies*, the Leaves of which being put into wooden Ceſterns, filled with Water, are often violently ſtirred about till the greateſt part be reduced to a ſlime or, or muſcelage, which being ſeparated from the Water, when ſunk to the bottom, and dried, produces that ſubſtance which we call Indigo; 'tis a Colour that grinds very fine, and lies with a good body, and is very much uſed in vulgar Painting.

Note, That the longer this Colour is ground, the more beautiful and fair it looks.

Smalt is a lovely Blue, if it lie at a diſtance, but it muſt be only ſtrowed on upon a ground of White Lead, for it is a Co-

a Colour that carries no good Body in Oyl it is ſo ſandy; beſides Oyl changes the Colour, and makes it look quite Black, except Whites be mixed, and they ſpoil the Beauty of the Colour and makes it faint; therefore the beſt way to lay it on is by ſtrowing (*as I ſhall ſhew in the following Work*) and then there is not a more glorious Colour in the World.

Note, That of this Colour there is two ſorts, the one much finer than the other, but the courſeſt gives the moſt glorious Colour of all, if lookt on at a diſtance, for near the Eye the Beauty is not ſo great; the fineſt is that which is called Oyl Smalt, which is ground with White-Lead, may be laid in Oyl; but it bears not a good body, and beſides works with much difficulty.

Umber is a Colour that really has no affinity with the others before mentioned, being neither a White, Black, Red, Yellow, Blue or Green, yet is a Colour of as great uſe as any of the reſt in vulgar Painting; 'tis an Earth or Mine, dug out of a certian Iſland in the *Mediterranian Sea*, being of the Complexion of that which among us is called a Hair Colour;

Colour; it grinds very fine, and bears the beſt body of any Earthy-Colour that's now in uſe, and when burnt becomes the moſt natural ſhadow for Gold of all others, and with a mixture of white, it reſembles the Colour of New Oaken-Wainſcot the neareſt of any Colour in the World; it dries quickly, and with a good Gloſs.

A Term Explained in the fore-going Notes, about bearing a Body.

Some may ſay, What is to be underſtood by a Colour's bearing a Body? I ſay then, to bear a Body, is, to be of ſuch a nature as is capable of being ground ſo fine, and mixing with the Oyl ſo intirely, as to ſeem only a very thick Oyl of the ſame Colour; and of this nature are White-Lead, and Cerus, Lam-black, Ivory-Black, Vermillion, Lake, Pink, Yellow-Oaker, Verdigreaſe, Indigo, Umber, and Spaniſh Brown; Blue Bice and Red-Lead are not ſo fine, but yet ſo fine as they may be ſaid to bear a very good body: all theſe may be ground ſo fine as to be like, even Oyl it ſelf, and then they alſo may be ſaid

to

to work well, ſpreading ſo ſmooth, and covering the body of what you lay it upon, ſo intirely, as that no part will remain viſible where the Pencil hath gone, if the Colour be work't ſtiff enough.

Whereas on the Contrary, Verditers and Smalts, with all the grinding imaginable, will never be well imbodied with the Oyl, nor work well; indeed Bice and Red-lead will hardly grind to an Oily fineneſs, nor lye intirely ſmooth in the working, yet may be ſaid to bear an indifferent body, becauſe they will cover ſuch work very well that they are laid upon; but ſuch Colours as are ſaid not to bear a body, will readily part with the Oyl, when laid on the Work; ſo that when the Colour ſhall be laid on a piece of Work, there will be a ſeparation, the Colour in ſome parts, and the clear Oyl in others, except they are temper'd extream thick.

CHAP.

CHAP. III.

Of the burning of Colours, or preparing of them that require to be ſo uſed.

OF this nature there be divers ſorts; as firſt Lam-black, a Colour of ſo greaſy a nature, that excepl it burnt, twill require a long time to dry.

Secondly, Umber if you intend it for the Colour of a Horſe, or to be a Shadow for Gold, then burning fits it for that purpoſe, by making it darker.

Lam-black muſt be burnt, or rather dryed thus: put it into an Iron-Ladle, or a Cruciple, and ſet it over a clear Fire, letting it remain till it be red hot, or ſo near it, that there is no manner of ſmoke ariſes from it.

Umber muſt only be put into the naked fire in large Lumps, and not taken out till they be throughly red hot. if you are more curious you may incloſe it in a Cruciple, and then put it into the fire till it be red hot, then take it out,

and

and when cold, put it up for uſe.

Ivory muſt be burnt alſo to make a Black as thus: Fill two Cruciples with Ivory-Shavings, then clap their two Mouths together, and bind them faſt with an Iron Wire, and lute the Joints cloſe with Clay, Salt, and Horſe-dung, well beaten together, then ſet it in a Fire, covering it all over with Coals, and let it remain therein, till you are ſure the matter incloſed in the Cruciples be throughly red hot, then take it from the fire, but open not the Cruciple till they are perfectly cold, for if you ſhould open them while hot, the matter would turn to Aſhes; the ſame will be done if the Joints are not luted cloſe, for 'tis only the excluſion of all Air that prevent any matter whatever that's burnt to a Coal, from turning to a white aſh, and preſerves the blackneſs.

CHAP.

CHAP. IV.

How to waſh ſuch Colours as for their grittineſs are not otherwiſe to be made fine enough for certain Uſes.

SOme Colours are of ſuch a gritty ſandy nature, that it's impoſſible to grind them ſo fine as ſome curious works do require; therefore to get forth the flower and fineneſs of the Colour, you muſt do thus; Take what quantity of Colour you pleaſe to waſh, and put it into a Veſſel of fair Water, ſtir it about till the Water be all coloured therewith; then if any filth ſwim on the top of the Water, ſcum it clean off, and when you think the groſſeſt of the Colour is ſettled to the bottom, then pour off that Water into a ſecond Earthen Veſſel that is large enough to contain the firſt Veſſel full of Water four or five times; then pour more Water into the firſt Veſſel, and ſtir the Colour that remains till the Water be thick; and after it is a little ſetled, pour that Water alſo into the

the ſecond Veſſel, and fill the firſt Veſſel again with Water, ſtirring it as before: do thus ſo often till you find all the fineſt of the Colour drawn forth, and that none but courſe gritty ſtuff remains in the bottom; then let this Water in the ſecond Veſſel ſtand to ſettle till it be perfectly clear, and that all the Colour be ſunk to the bottom; which when you perceive, then pour the Water clear from it, and reſerve the Colour in the bottom for uſe, which muſt be perfectly dryed before you mix it with Oyl to work.

The Colours thus ordered, are Red-Lead, Blue and Green Bice, Verditer Blue and Green, Smalt, and many times Spaniſh Brown, when you would cleanſe it well from Stones for ſome fine work, as alſo Yellow Oaker, when you intend to make Gold-Size of it.

Take Notice alſo, That unleſs you intend to beſtow ſome coſt, you need not be at the trouble to waſh your Colours, but uſe them for coarſe ordinary work, as you buy them at the Shops.

CHAP.

CHAP. V.

How to grind Colours with Oyl.

WHen you come to grind Colours, let your Grinding-ſtone be placed about the heighth of your Middle; let it ſtand firm and faſt, ſo that it joggle not up and down; then take a ſmall quantity of the Colour you intend to grind (two ſpoonfuls is enough) for the leſs you grind at a time, the eaſier and finer will your Colour be ground: lay this two ſpoonfuls of Colour on the midſt of your Stone, and put a little Linſeed Oyl to it, (but be ſure you put not too much at firſt) then with your Muller mix it together a little, and turn your Muller five or ſix times about, and if you find there be not Oyl enough put a little more to it, and grind it till it come to the conſiſtence of an Oyntment; or appears free from any ſort of lumps, and ſmooth as the moſt curious ſort of Butter; for then when ſtiffiſh it grinds much better and ſooner than when it's

ſo thin as to run about the Stone: and you muſt oftentimes, in the grinding, bring your Colour together with a piece of Lanthorn Horn, in the middle of your Stone; and when you find you have ground it fine enough by the continual Motion of you Muller about the Stone, holding it down as hard your ſtrength will permit (which you muſt alſo move with ſuch a ſleight, as to gather the Colour under it) and that no knots nor grittineſs remains, but that 'tis become as fine even as Butter, then with your Horn cleanſe it off the Stone into a Gally-Pot, Pan, or whatever elſe you deſign to put it into, and then lay more Colour on your Stone, and proceed to grinding as before: do ſo thus often till you have ground as much of this ſame Colour, as ſhall ſerve your occaſions; and if you grind other Colours after it, let the Stone be well cleanſed from the firſt Colour with a Cloth and fine dry Aſhes, or Sand.

Some grind at one time ſo much of every Colour, as may be ſufficient to ſerve a long time together, which they keep tyed up cloſe in Oxe or Sheeps Blad-

Bladders; and by this method a Man ſhall prevent the daubing of himſelf too often by grinding of Colours.

Thoſe that liſt not to be at the trouble of grinding Colours themſelves, may have of any ſort, ready ground, at the Colour-ſhops, at reaſonable rates, either in ſmaller or larger Quantities as they have Occaſion, from an Ounce to any weight they deſire.

CHAP. VI.

How to order Colour for working after they are ground.

WHen you have thus ground your Colours (if you obſerve my Directions in grinding) they will be too thick for uſe without the Addition of more Oyl; therefore when you have ground thoſe Colours you deſire, and intend to uſe them, either ſimply by themſelves, or mixt and compounded with others, according as your fancy or occaſions require, you muſt then add more Oyl to them, till they be ſo thin as not

to let the ground on which they are laid be ſeen through them; for if it be ſo thin as to let the ground be ſeen through them, or to run about when it be laid on, it is not good, and will alſo require to be coloured the oftner before your work be perfect and ſubſtantial; whereas if your Colour be as ſtiff as it ought to be, your work will be done with more ſpeed; once doing being then more than twice doing with thin Colour.

And here by the way, take notice of the fraud and deceit of common Painters, who commonly agree to do work by the Yard at a certain price, to be coloured three times over, which they commonly paint with ſuch thin Colour (*to avoid the labour of grinding, a little Colour ſerving a great deal of Oyl, and beſides it works with leſs pains, and takes up leſs ſtuff*) that all three times doing over it is not ſo ſubſtantial as one time would be, if the Colour had a thick and ſubſtantial Body: and I'll maintain, that three times colouring with ſubſtantial and well bodied Colour, ſhall laſt ten times as long as that which is wrought thus ſlightly by common Painters.

But

But if the Colour be your priming Colour, *(that is the first Colour you lay on)* it ought to be made very thin, that it may have Oyl enough to pierce into the Wood, which is much for its preservation; but after your first Colour is laid, let your next be thicker, as before is taught.

Some Colours will be a long time before they be dry, if mixt only with plain Linseed Oyl; to remedy which, *there is a way to prepare Linseed Oyl by art*, to make any Colour dry that is mixt with it; *As for Example*, To a Quart of Linseed-Oyl, add two Ounces of the Litharge of Lead, which may be had at every Drugster's Shop *(*some use Red Lead*)* pouder it finely before you put it to the Oyl, when you have mixt it, set it on the Fire in an Earthen-Pan, and let it boyl for near an hour, more or less, till the Oyl be grown fat, or almost of the thickness of Treacle that comes from Sugar; then set it on the fire with a lighted Paper, and stir it well while burning, then put out the Flame after it hath burnt a Minute or two, and let the matter stand till it be throughly cold, and the Litharage well

ſetled to the bottom, then pour off the clear Oyl, and keep it for uſe in a Bladder cloſe tyed up, or for want of that, in a Glaſs Bottle.

When you mix up your Colours for working, put three parts of plain Linſeed Oyl, and one part of this drying Oyl, together in a Pan, and mix them well together, and with this temper up your Colours; this fat-drying-Oyl ſhall not only make your Colours dry ſooner than plain Oyl, but it ſhall alſo add a beauty and luſtre to the Colours; ſo that they will dry with a gloſs, as if they had been varniſhed over.

Some Colours indeed don't need to have their drying haſtened by a fat Oyl, and ſuch are Red Lead, Verdigreaſe, and Umber; theſe being very drying in their own nature, but yet fat Oyl added to theſe alſo, do add a great beauty and luſtre to the Colour.

Some Painters to make their Colours dry, take Copperas, and having beaten it to pouder, burn it in a Fire-ſhovel, as people do when they burn Allum; that is, they ſet it on the fire, till being melted with the heat, it be continued thereon ſo long, till all the moiſture be exhaled,

haſled, and the matter remain a dry white Calx; ſome of this pouder of burnt Copperas, being added to the Colours in grinding, will make the Colour dry very well.

The way before recited for making of drying Oyl, has one inconvenience in it, that it makes the Oyl of a deep rediſh Colour, which in ſome Caſes may alter the native beauty of ſome Colours, as Whites, which be apt to become Yellow, alſo Blues may by this means become greeniſh.

To prevent this, a drying Oyl may be prepared, as ſhall be clear and white of Colour, in the manner following.

Put the afore-mentioned quantity of Linſeed-Oyl to the like quantity of Litharage; put the mixture into a Glaſs, and ſet it in the hot Sun, for a Month, in the Summer time, ſtirring the Litharage and the Oyl well together, twice a Week during the whole time, and you ſhall not fail in that time to obtain not only an Oyl, very white and clear (*for the Sun takes away all Colour, either from Linſeed, or Walnut-Oyl*) but alſo, it will become in that time very fat and thick, and attain to a very drying quality.

By the ſame methods may Nut-Oyl be made too dry as well as that of Linſeed, it being preferred before that of Linſeed, for all White Painting that is not expoſed to the open Air, for 'tis obſerved, that in all cloſe places, Linſeed Oyl is apt to make White-Lead turn Yellow.

Take Notice, That all ſimple Colours uſed in Houſe Painting, appear much more beautiful and luſtrous, when they appear as if glazed over with a Varniſh, to which both the drying Oyl before-mentioned contributes very much, and alſo the Oyl of Turpentine that the Painters uſe to help to make their Colours dry ſoon, but Experience teaches, that ſome good clear Turpentine, diſſolved in the aforeſaid Oyl of Turpentine, before it be mixt with the Oyl Colours, will make thoſe Colours ſhine much when dry, and preſerve their beauty beyond moſt other things, drying with an extream glaſy ſurface, more ſmooth than Oyl alone, and ſhall alſo better reſiſt the Injuries of Air and Weather, provided too much be not put in.

CHAP.

CHAP. VII.

How to make a Size for the guilding both with Gold and Silver.

THE Operation is thus for the making of Gold Size; Take Yellow-Oaker and grind it on a Stone with Water till it be very fine, and afterwards lay it on a Chalk Stone to dry; this is the common way: or you may waſh it as is taught in the Fourth Chapter. For when it is waſhed, to be ſure nothing but the pureſt of the Colour will be uſed; and beſides, it's done with leſs daubing.

When your Oaker is thus prepared, you muſt grind it, as you do other Oyl Colours, only with fat drying Oyl, but it's ſomething more laborious work, and muſt be ground very fine, even as Oyl it ſelf: for the finer it is, the greater Luſtre will your Gold carry that is laid on it.

Here *Note*, That you muſt give it ſuch a quantity of your fat Oyl, that it may not be ſo weak as to run when you have

have laid it on; nor ſo ſtiff, that it may not work well; but of ſuch a competent Body, that after it is laid on, it may ſettle it ſelf ſmooth and Glaſy, which is a chief property of good Size.

Silver-Size is made by grinding White Lead with fat drying Oyl, ſome adding a very little Verdigreaſe to make it bind.

The practice of guilding with either Gold or Silver, I ſhall refer to Chapter XIV.

CHAP. VIII.

The Practice of working Oyl-Colours, and Painting of Timber-Work, after the manner of vulgar Painting.

THat which I here call vulgar Painting, is only the way and manner of Colouring all manner of Wainſcot, Doors, Windows, Poſts, Rails, Pails, Gates, Border-Boards for Gardens, or any other material that requires either beauty or preſervation from the violence of Rain, or injury of weather; the method of doing which I ſhall here lay down as plain

as

as I can. Suppoſe then that there be a ſet of Paliſadoes, or a pair of Gates, or ſome Poſts and Rails to paint, and I would finiſh them in a Stone Colour; firſt look over the work, and take notice whether the Joints be open in the Gates, or whether there be any large Clefts in the Poſts, for if theſe are not ſecured the wet will infinuate it ſelf into thoſe defects, and make the quicker diſpatch in roting the whole Work; let the firſt buſineſs therefore be, to ſtop up theſe places ſmooth and even, with a ſubſtance by the Painters called Putty, made of Whiting and Linſeed Oyl, well beaten together on the grinding ſtone, or with a Wooden-Mallet, to the Conſiſtance of a very ſtiff Dow, and with this let all the Crannies, Clefts, and other Defects be perfectly filled up, that it may be equal to the Surface or outſide of the Stuff, then proceed to the priming of the Work with ſome Spauiſh-Brown well ground and mixt very thin with Linſeed Oyl; with this do over the Work, giving it as much Oyl as 'twill drink up; this in about two days will be indifferent dry, then if you would do the Work ſubſtantially, do it over again with the ſame

prim-

priming Colour; when this is through dry, then take White Lead well ground and tempered up, but not too thin, for the ſtiffer you work it, provided it be not too ſtiff, the better Body will be laid on, and the longer 'twill laſt; let this Colour be well rub'd on, with a large Briſtle Bruſh, and the whole ſurface of the Work be ſo intirely covered, that there remain no crick nor corner bare, which you may eaſily do by jobbing in the point of a Briſtle Bruſh: Let this firſt Colouring dry, and then go over it a ſecond time, and if you pleaſe a third alſo; the charge will be a little more, but the advantage will be great in the Duration.

This Courſe is ſufficient for any kind of Timber work that requires only a plain Colour; whether you thus cover the Work with a Stone Colour, or elſe with a Timber-Colour in Umber and White, or a Lead-Colour with Indico and White, that with White being the cheapeſt of the three by much; nay, I have known ſome lay over their Work only with a coat of Spaniſh-Brown, by tempering it up more ſtiff than was done for the two firſt primings, which in ſome

reſpects

reſpects is cheapeſt of all, and preſerves the Timber perhaps as well as any. Now he that is able to bring the work thus far on, has proceeded to the higheſt pitch of that vulgar Painting that aims at preſervation beyond beauty, though ſomething of Beauty is neceſſarily included in this alſo; but this is not all, for he that is arrived thus far, is in a fair way to other perfections in the Art of Painting; but for the Pannelling of Wainſcot with its proper ſhadows, and for imitating Olive and Walnut-Wood, Marbles and ſuch like; theſe muſt be attained too by ocular inſpection, it being impoſſible to deliver the manner of the Operation by Precept without Example, and I am bold to affirm, that a Man ſhall gain more Knowledge by one day's Experience, than by a hundred ſpent to acquire it ſome other way.

I adviſe therefore all thoſe that deſire an inſight into this Buſineſs, to be a little curious, if opportunity offers, in obſerving the manner of a Painter's working, not only in grinding his Colours, but alſo in laying them on, and working in them; in all theſe obſerving the motion of his Hand, in the manage of any kind

of

of Tool; and by this means, with a little imitation, joined to the directions here given; I doubt not but in a ſhort time you may arrive to great proficiency in the buſineſs of vulgar Painting.

Note, That if when you have made uſe of your Colours, there be occaſion for a ſmall Ceſſation till the Work be finiſhed; in this Caſe 'tis beſt to cover the Colour, if any remain in your Pots with Water, for that will prevent their drying, even in the hotteſt time.

And for your Pencils, they ought, ſo ſoon as you have done working, to be well waſht out in clean Linſeed Oyl, and then in warm Soap-Suds; for if either Oyl or Colours be once dryed in the Bruſh or Pencil, 'tis ſpoiled for ever.

It has been obſerved, that Timber laid over with white, when it has ſtood ſome time in the weather, the Colour will crack and ſhrink up together, juſt as Pitch does if laid on any thing that ſtands in the Sun; the Cauſe of this is for that the Colour was laid on with too ſtiff a body, for being wrought too thick at once, it will dry with a Skin on the out ſide, which will keep the inſide moiſt,

and

and prevent its binding firm, from whence thoſe Cracks proceed.

For the cloſe of this Chapter take Notice, that if you ſhall at any time have occaſion to uſe either Bruſhes that are very ſmall, or Pencils, as in many caſes there will be occaſion, you ought then to diſpoſe of the Colours you uſe upon a Pallet (*which is a wooden Inſtrument, eaſy to be had at any Colour-ſhop*) and there work and temper them about with your Pencil, that the Pencil may carry away the more Colour; for *you are to note*, that if a Pencil be only dipt into a Pot of Colour, it brings out no more with it than what hangs on the outſide, and that will work but a little way, whereas if you rub the Pencil about in the Colour, on the Pallet, a good quantity of Colour will be taken up in the Body of the Pencil; and beſides all this, you may work your Pencils better to a point on a Pallat, than you can do in a Pot; the point of a Pencil being of greateſt uſe in divers caſes, eſpecially in drawing of Lines and all kind of Flouriſhing.

CHAP.

CHAP. IX.

What Colours are moſt ſutable, and ſet off beſt one with another.

BY ſetting off beſt, I mean their making each other look moſt pleaſant; for two of ſome particular Colours put together, or one next the other, ſhall add much to the Beauty of each other, as Blue and Gold, Red and White, and ſuch like: But Green and Black put together, look not ſo pleaſant, neither do Black and Umber, or Haw-Colour, and ſuch like.

All Yellows ſet off beſt with Blacks, with Blues, and with Reds.

All Blues ſet off beſt with Whites and Yellows.

Greens ſet off well with Blacks and Whites.

Whites ſet off well enough with any Colour.

Reds ſet off beſt with Yellows, and Whites and Blacks.

Gold

Gold looks well upon a White ground, eſpecially if the matter to be guilt be carved.

Gold and Black alſo ſhew very well.

Gold on Timber-Colour, ſhews alſo very well.

So does Gold and a Horſe Fleſh Colour, made with the brighteſt Spaniſh Brown.

But the moſt glorious ground of all others for Gold are the Vermillion Red, the Smalt-Blue, and the Lake, laid on a light ground.

Of ſome Colours that ariſe from mixture.

Aſh Colour is made of White Lead and Lam-black; if a deep Aſh Colour, then take the more Black, but if a light one, then take but little White, and moſt Black.

A Lead-Colour is made of Indico and White.

A Colour reſembling new Oaken Timber, is made of Umber and White Lead.

A Fleſh-Colour is compounded of Lake, White Lead, and a little Vermillion.

A Buff-Colour, is made of Yellow-Oaker and White-Lead.

For a Willow-Green take Verdigreaſe alone.

For a light Willow Green, take Verdigreaſe and White.

For a Graſs Green, take Verdigreaſe and Pink.

A Carnation is made of Lake and White.

Yellow-Oaker, and Red-Lead, make an Orange Colour.

For a Light-Timber-Colour, mix Spruſe Oaker and White, and a little Umber.

Red-Lead, a little White and Yellow-Oaker, make a Brick Colour.

For a Straw-Colour, take White and a little Yellow-Oaker.

Olive-Wood is imitated with Oaker, and a little White veined over with burnt Umber.

Walnut-Tree is imitated with burnt Umber, and white vein'd over with the ſame Colour alone, and in the deepeſt places with Black.

Pales and Poſts are ſometimes laid over only with White, which they call a Stone Colour.

Some-

Sometimes Poſt and Pales are laid over with Indico and White, which is called a Lead-Colour.

Window-Frames are laid in White, if the Building be new, but if not, then they generally are laid in Lead Colour, or Indico and White, and the Bars with Red-Lead.

Doors and Gates, if painted in Pannels, then the ſhadows of a White ground are Umber and White, but if laid in a Lead-Colour, then the ſhadows are liſted with Black.

'Tis not poſſible to ſet down all thoſe varieties of Colours that may be produced by mixture; but thoſe which I have here given an account of, are ſufficient for common Painting.

CHAP. X.

Of Painting Sun-Dials, and firſt of the Plains on which Dials are to be drawn.

Dial-Plains are of two ſorts, firſt ſuch as are made on the Wall of

a Building, or ſecondly, ſuch as are drawn on Tables of Wood, vulgarly called Dial Boards.

The firſt ſort, if they are made on Brick Work, is done by Plaſtering on the Wall with Lime, Sand, and Hair mixt; this, if well drencht with Linſeed Oyl, after 'tis dry, or as long as it will drink in any, and then with Oyl and White Lead, may be durable enough.

But a better way is to temper the Lime, Sand and Hair with Ox Blood, which will be no great charge, but of great advantage; for this mixture will equal in time the hardneſs of a Freeſtone, and keep the ſurface as free from the injuries of Weather; but you muſt afterwards paint it White.

If you were to work on a Stone, the beſt way is to drench the Stone with Linſeed Oyl and White, very thin, 'till twill drink in no more, then ſhall the Dial you paint upon it, laſt longer and be the better prepared againſt the ruins of time.

Now for Tables or Dial-Boards of Wood, they being the moſt Common, I ſhall give ſuch Directions for the making

king of them, as I have always found moſt profitable and fit for this purpoſe.

The Woods that I find beſt for this uſe are the cleareſt Oak, and the reddeſt Firr, provided it be not Turpentiney; between theſe two Woods I find little difference, as to their alteration by the weather, both being ſubject to ſplit in caſe they are bound, and have not free liberty to ſhrink with dry weather, and ſwell with wet; but as to their laſting, I judge Oak to be the better: how long Firr will laſt when ſecured and defended with Oyl-Colours, I have not yet experienced; but we may judge that good Red Firr, that is hard, will laſt the Age of any ordinary Man, if it be ſecured as things of this nature ought to be.

In working any of theſe kind of Woods, I adviſe, that firſt your Boards be cut to ſuch a length as you intend your Dial-Board ſhall be of, and ſo many of them as may make up the breadth deſigned; then let them be jointed on the Edges and plained on both ſides, and afterwards ſet to dry (*for 'tis obſerved, That though Board have lain in an Houſe never ſo long, and are never ſo dry, yet*

when they are thus ſhot and plained, they will ſhrink afterwards beyond belief, if kept dry :) when you think they are dry enough and will ſhrink no more, let them be again ſhot with good Joints, and let every Joint be ſecured by two Wooden Dove-Tails, let in croſs the Joint on the Back ſide; but let this be done when the Boards are glewed together and well dryed, and what a Dove-Tail is every Joiner knows. After it is thus glewed, and the Joints be ſufficiently dry, then let the face of the Board be very well plained and tryed every way, that it may be both ſmooth and true, and the edges ſhot true, and all of a thickneſs, as Pannels of Wainſcot are commonly wrought, the edges muſt be thus true and even, that they may fit into the rabet of a moulding put round it; Juſt as a Panel of Wainſcot doth in its Frame. This will give liberty to the Board to ſhrink and ſwell without tearing; whereas Mouldings that are nailed round the edge, as the common way is, doth ſo reſtrain the Motion of the Wood, that it cannot ſhrink without tearing: but Boards made this way will laſt a long time without either parting

in

in the Joints, or ſplitting in the Wood.

Dials are ſometimes drawn on Plains lined with Copper or Lead, that they may be free from ſplitting or tearing; but I prefer a Board *(if it be made as above is directed)* before them in many reſpects: As firſt, it is much cheaper: Secondly, Lead *(and Copper too a little)* will ſwell with the heat of the Sun, and grow in time hallow outwards, or Convex, inſtead of a perfect flat; ſo that the Truth of its ſhadow will be much injured. Thirdly, the Colours will be apt to peel from the mettal, and the Dial will by that means be in danger to be ſooner defaced than if it were painted on a wooden Plain.

CHAP. VI.

How to make the beſt Glue for gluing the Joints of Dyal-Boards.

THis may by ſome perhaps be counted needleſs to be inſerted, eſpecially in theſe parts, where few Men that work in Timber, can be ignorant of it;

But ſuppoſing a Gentleman that lives in the Country, have a mind to have a Dial-Board made, and being not willing to ſend to *London*, imploys his own Carpenter; I muſt tell you, that many Country Carpenters ſcarce underſtand the right way of making or uſing Glue, to whom ſuch a direction as this may prove very welcome.

Take then a Quart of Water, and ſet it on the fire, then put in it about half a pound of good Glue, and boyl them gently together on a ſoft fire, till the Glue be wholly diſſolved, and of a due conſiſtance; for if it be too thin, the Wood will ſo drink it up, that there will not remain a Body ſufficient to bind the parts together; on the contrary, if it be too thick, 'twill not give way for the Joint to ſhut cloſe enough, to be ſtrongly joined; for though 'tis Glue that makes the Joints ſtick, yet where there is ſo much of it, that the Joint can't cloſe exactly, 'twill never hold firmly.

Whenever you come to uſe Glue, take care that it be firſt throughly hot; for Glue that is not hot, never takes firm hold of the Wood.

Be ſure alſo, that the Subſtance you are to glue, have not been touched with Oyl, nor injured with Greaſe; for where theſe have before touched, Glue will never take faſt hold: But note, that after a thing is once glued faſt, no Greaſe nor Oyl can then hurt it.

Your Glue being made ready, and the Joints of your Boards ſhot true, ſet both the faces of the Joint cloſe together, and both alſo turned upwards, then dip a Bruſh in the Glue, and beſmear the faces of both Joints, as quick as poſſible, then clap the two faces of the joint together, and ſlide or rub them long ways one upon another, two or three times to ſettle them cloſe, and ſo let them ſtand till they are firm and dry.

CHAP. XII.

What Colours are requiſite for the Painting of a Sun-Dial.

FOur Colours are ſufficient for this Work, *viz.* Spaniſh Brown, for the priming or firſt Colour.

Whiter

White Lead, for the ſecond Colour and finiſhing the face of the Table.

Vermillion, for drawing of the hour Lines.

And Lam-black, for the Figures in the Margent, reſpecting the Lines of every Hour, if it be a plain Dial.

But if you intend to guild the Figures, then there is required ſome others, as Gold, and the Size to lay it on, and Smalt for a Blue ground, if you intend a rich Colour; but ſome lay the ground, where the Figures are guilt, with Vermillion, and that ſhews well, if the Figures are liſted with Black, and a Black Moulding round the Dial.

The next particular ſhould be the practice of Painting the Dial, but before that can be done, the Draught muſt be drawn; and therefore I think a word of advice may not be unſeaſonable, if it directs you to the beſt Authors that have written of that Subject.

To which purpoſe I place firſt *Stirrup*'s Dialling, as being of excellent uſe to acquaint a young Learner with the knowledge of the Sphear, that he may underſtand the nature and reaſon of Dials.

The

The next in order ſhall be *Collin*'s Dialling; a Book of great worth throughout.

The third *Leybourn*'s Dialling, in which you have the beſt ways for drawing Eaſt and Weſt Dials, and Far Decliners: He is excellent alſo in the Inſtrumental way.

The fourth is *Collin*'s Sector on a Quadrant, in which you have communicated the Cut of a Scale, that by knowing the Declination, gives all the reſt of the requiſites of an upright Decliner, by inſpection only, with as great exactneſs, as by the niceſt Calculation: Beſides, it teaches the way of drawing the Hours of a Dial by the Tangent Line, and alſo by the Scale of Hours; two of the beſt and moſt expeditious ways that ever were yet found out.

CHAP. XIII.

The Practice of Painting Sun-Dials.

WHen according to the Rules given in the Books aforementioned, you

you have drawn on Paper the draught of your Dial; and that your Board be ready, and your Colours prepared according to the Directions before given, you muſt then in Painting of your Dial proceed thus; Take Spaniſh Brown that is well ground and mixed ſomewhat thin, and with a large Briſtle Bruſh, dipt therein, Colour your Board or Plain all over, both on the Back as well as Foreſide, to preſerve it the better, ſo that you leave no part uncoloured; this is called the Priming of your Dial: When this firſt Colour is dry, do it over again with more of the ſame Colour, tempered ſomewhat thicker; and when this is alſo dry, you may, if you pleaſe, do it over again with the ſame Colour, your Work will be the ſubſtantialler, and laſt longer.

When this laſt time of Colouring with your Priming is dry, then with White Lead colour the face of your Plain over, and when it is dry, work it over again three or four times more, ſucceſſively after each drying, ſo ſhall the face of your Plain be ſufficiently defended againſt the many years fury and violence of weather.

When

When the laſt Colouring of your White be dry, you muſt draw on your Plain (with a Black-Lead Pencil) a Horozontal Line ſo far diſtant from the upmoſt edge of your Dial, as your diſcretion ſhall think fit, or your Experience finds to be moſt becoming your Plain; then ſet out the Margin of your Dial with boundary Lines for the Hour, half Hour, and quarter diviſions of your Dial (as in moſt Dials you ſee it done:) when you have thus ſet out the Margin and Boundary Lines of your Dial, then take your Paper draught fairly drawn, and place the Horozontal Line thereof on that which you before drew on your Plain: in doing of which, obſerve to place the Center according as the Situation of your Plain for Convenience ſake requires: thus: If your Dial be a full South Dial, then let the Center be exactly in the middle of your Plain: but if your Dial decline from the South, either Eaſt or Weſt, then place not the Center of your Draught in the Center of your Plain, but nearer to one ſide or other of it, according as it declines, having alſo reſpect to the quantity of its declination.

For

For Example: If your Dial decline Eaſtwards, then let the Center of your Draught be plac'd between the Center and the Eaſtern ſide of your Playn, the quantity thereof muſt be according as your Dial declines; if it decline but a little, then place the Center of your Draught but a little from the Center of your Plain; and if it declines much, place the Center of your Draught the more out of the Center of your Playn: The reaſon of my adviſing this, is, that by ſo doing you may gain a greater diſtance for thoſe Hour-Lines, which in declining Playns fall nearer together on one ſide than they are on the other; for which reaſon I always uſe it in all declining Playns, except they decline far, as between 80 and 90 Degrees: for then we commonly draw them without Centers, to gain the more diſtance for the Hour-Lines.

When your Paper Draught is thus Artificially placed on the Playn, and faſtned with Pins or ſmall Tacks; then let the Draught thereof be transferred to the Playn, by laying a Ruler over every Hour, half Hour, and Quarter Diviſion: and where your Ruler ſhall cut or

 inter-

interſect the boundary Lines of your Margin, there make marks, by drawing Lines with a Black-Lead Pencil, of ſuch a length as each diviſion requires (*or is deſigned by your boundary Lines*) obſerving always to draw the Hour, and half Hour Lines quite through your Margin, that they may be guides for the right placing of the Figures, and for a ſmall ſpot that is uſually placed in the Margin, right againſt the half Hour.

When your Dial Draught is thus transferred to the Playn it ſelf, you muſt not forget to draw the ſubſtil Line according as it lyeth in your Draught, to be your guide for the right placing your Still or Cock; for you muſt in every particular be very exact, or elſe your Dial cannot be good.

When you have taken every thing that is required from your Draught, and have transferred it to the Playn, then take your draught off, and with Vermillion very well ground and prepared, as before is taught, let the boundary Lines of your Dial, as alſo the Hour, half Hour, and Quarter Diviſions be drawn therewith; let your Colour be as

thick

thick and ſtiff as you can poſſible work it, ſo as to draw a clear and ſmooth Line, becauſe this is to be done but once.

When your Vermillion Lines are drawn, then with Lamp-Black let the Figures be made, and a ſpot in the middle of the Margin right againſt the half Hour Line; and if you pleaſe, in the Margin, at the top of your Playn you may put the date of the Year, your Name, or ſome Sentence, as it is uſual in things of this nature: then fit in your Cock ſo as to make right Angles with the Playn, ſo ſhall your Dial be drawn and finiſhed in all reſpects as a plain Dial ought to be.

CHAP. XIV.

How to guild with Gold on an Oily Size, either Letter or Figures, in Dials or any other Works.

WHatſoever you would guild muſt firſt be drawn with Gold Size (*of the making of which, ſee* Chap. 7.) accord-

according to the true proportion of what you would have guilt, whether Figure, Letter, or whatever elſe it be; when you have thus drawn the true proportion of what you would have guilt, let it remain till it be ſufficiently dry to guild upon, which you ſhall know by touching it with the end of your Finger; for if your Finger ſtick a little to it, and yet the Colour come not off, then it is dry enough: but if the Colour come off on your Finger, then it is not dry enough, and muſt be let alone a little longer; for if you ſhould then lay your Gold on, it would ſo drown it, that it would be worth nothing: but if your Size ſhould be ſo dry as not to hold your Finger as it were to it, then is it too dry, and the Gold will not take; for which there is no remedy but new Sizing; therefore you muſt watch the true time that it be not too wet or too dry; both extreams being unfit for laying the Gold on it.

When your Size is ready for guilding, take your Book of Leaf Gold, and opening a Leaf of it, take it out with your Cane-Plyers, and lay it on your guilding Cuſhion, and if it lye not ſmooth, blow on it with your breath

which will make it lye flat and plain, then with a Knife of Cane, or for want of it, an ordinary Pocket-Knife (*that hath a ſmooth and ſharp edge; being wiped very dry on your Sleeve that the Gold ſtick not to it*) let your Leaf-Gold be cut into ſuch pieces, or forms as your Judgment ſhall think moſt ſutable to your work.

When you have thus cut your Gold into convenient forms, then take your Tool that was before deſcribed in *Num.* 9. of *Chap.* 1. and breath upon it to make it dampiſh, that the Gold may ſtick to it; with this Tool take your Gold up (*by clapping it down on the ſeveral pieces you had before cut into forms*) and tranſfer it to your Size, upon which clap it down according to diſcretion, and your Gold will leave your Tool, and cleave to your Size; which you muſt afterwards preſs down ſmooth with a bunch of Cotton, or the bottom of a Hares Foot: and thus you muſt do piece by piece till you have covered all your Size with Gold; and after it is fully dryed, then with your Hares Foot bruſh off all the looſe Gold, ſo will your guilding remain fair and beautiful.

If

If your Work to be guilt be very large, open your Book of Leaf-Gold, and lay the Leaf down on your Work, without cutting of it into pieces, and ſo do Leaf by Leaf till you have covered quite over what you intend to guild: and if ſome particular places ſhould miſs, take up with a ſmall bunch of Cotton a piece of Leaf-Gold, cut to a fit Size, and clap it on, that the Work may be intirely covered; and if the Gold be to be laid in the hollows of Carved Work, you muſt take it up on the point of a Camel-Hair Penſil; and convey it in and with the ſaid Penſil, dab it down till it lie cloſe and ſmooth.

Note, That after your guilding is thus perfectly laid on, you may, if you pleaſe, Diaper or flouriſh on it with thin burnt Umber, whatſoever ſhall be ſuitable to your deſign: Let the Umber be tempered but thin, ſo that the Gold may appear through it; the form and order of which take from Examples which are abundant, where Painting and Guilding are found.

Note further, that a Book of Gold contains 24 Leaves, each Leaf being three Inches ſquare; the price of each Book

is two Shillings at the Gold-Beaters; one Book will cover 216 ſquare Inches of work; for ſo many ſquare Inches is contained in 24 Leaves, that are three Inches ſquare, every Leaf containing nine ſquare Inches ſuperficial in Gold: the right underſtanding of this will much guide you in judging how many Books of Gold will ſerve to guild that work, whoſe ſuperficial content in ſquare Inches may before be known.

How to guild with Silver.

IN laying on Silver upon an Oily Size, the ſame method in all reſpects is required as for guilding with Gold; ſave only in this, that the Size upon which Silver is laid, ought to be Compounded of a very little Yellow Oaker, and much White-Lead; for the Size being of a light Colour, the Silver laid on it will look more natural, and retain its own Colour better, the whiter the Size is.

Note, That the Common Painters do now generally in guilding uſe more Silver than Gold, in moſt Works that are not much expoſed to the Air, to which they

they afterwards give the Colour of Gold, by means of the Laker-Varniſh, whoſe uſe is now ſo common, that if they guild any thing that ſtands free from the weather, they only guild with Silver, and ſo give it the Colour of Gold with a Lacker Varniſh, made of Gum-Lake, diſſolved in Spirit of Wine, and laid over it.

CHAP. XV.

The way of Painting a Blue with Smalt, the only Colours that requires ſtrewing.

SMalt being a Colour that gives its greateſt luſtre by the way of ſtrowing only, I ſhall lay down the true method of performing this work: firſt temper up White-Lead pretty ſtiff with good clear drying Oyl; let it be as ſtiff as it well can be to ſpend well from the Pencil, with this white Colour cover overs the Superficies of the work you intend to ſtrow with Smalt; and if it be the Margent of a Dial whoſe Figures

are already Gilt with Gold, let every part between the Figures, and where there is no Gold laid on, be done over, and be very exact in the work, for the Smalt takes no where but on this new and moiſt ground; then take Smalt, and the Work to be done over with it lying flat, ſtrowing it thick on the thing to be coloured, and with the feather edge of a Gooſe-Quill ſtroke over it, that it may lie even and alike thick on all Places; and then with a Bunch of Linnen Cloath, that is ſoft and plyable, dab it down cloſe, that it may take well upon the ground to be throughly dry, then wipe off the looſe Colour with a Feather, and blow the remainder of it off with a pair of Bellows, ſo is your Work finiſhed. And thus you have a Method for Colouring any kind of work, by the way of ſtrowing with Smalt, provided the work be ſuch as requires only the plain Colour.

But in Caſe you deſign to paint any kind of Body in Smalt, that requires ſhadow for the more perfect reſembling the thing you intend. As ſuppoſe it were a Blue Bell, or a Blue Boar, or the like: In this Caſe, when you have drawn

drawn out the perfect Simetry of the ſhape you intend, and have covered it with a ground of White Lead, well and ſtifly tempered with clear and fat Linſeed Oyl, then proceed to give it thoſe neceſſary ſhadows you intend, with good Black well tempered; and when you have finiſhed theſe ſhadows, then ſtrow on your Smalt, as before was directed; and when the whole is dry, and the ſuperfluous part be taken away, the Work will appear, with all its ſhadows, as exact as poſſible.

Note, That the Work upon which you lay on this ground, for to be ſtrowed on with Smalt, ought firſt to be ſufficiently primed and laid alſo over once with white before you lay on the ground, that you may be ſure the ground be perfectly white; for a white ground is the only thing that gives beauty and glory to the Colour of the Smalt.

In all other Caſes, where the Work to be ſtrowed over with Smalt does not lye flat, you muſt take Smalt up upon a flat bunch of Linnen Cloath, and ſo dab it upon the ground you are to lay it upon.

CHAP. XVI.

How to ſcour, refreſh and preſerve, all manner of Oyl Paintings.

THE Oyl Paintings that I here intend, are only ſuch as are kept from the injuries of weather; for ſuch Paintings as endure the fury of Rain and Storms (ſuch as Sun-Dials, Poſts, Pales, *&c.*) are not any ways to be renewed or refreſhed, but by being new coloured with the ſame Colour in which it was at firſt wrought, becauſe that the body and ſtrength of the Colour is worn out by the continual aſſaults of waſting time, and cannot be made freſh, unleſs new done over once in 4 or 5 Years, or more according as the Weather is found to wear it off, and make it look dull.

But as for ſuch Painting that is ſheltered from weather, as all In-door Paintings are, they ſtill keep their Body and Colour, although their beauty may be much impaired by duſt, ſmoak, fly-ſhits, and the like, which will in time ſoyl and

and tawniſh them; To remedy which, take theſe few Rules:

If your Painting be Wainſcotting, or any other Joynary or Carpentary Work that is painted in Oyl, take Wood aſhes well ſifted, which mix with Water ſomewhat thickly, then take a large ſtrong briſtle Bruſh, and dip it in the moiſtened aſhes, and therewith rub and ſcour your Painting all over very gently in all places alike, and when you find that all the Soyl is taken off, then waſh it clean with fair Water, and let it dry; and you will find your Painting to be near as freſh as when laid on.

But if your Painting be more Curious, whether Figures of Men, Beaſts, Landskip, Frutage, Florage, or the like, then let your Picture be gently ſcoured, and then cleanly waſhed off with fair Water: after it is well dry, let it be run over with Varniſh made with white of Eggs, and you will find the Beauty and Luſtre of your Picture much recovered.

The whites of Eggs before mentioned, are only to be beaten to an Oyl, and then curiouſly rubbed on either with a clean Linnen Cloath, or a Penſil.

But

But *Note*, That this ſcouring of Pictures ought not to be practiſed but very ſeldom (*as when your Picture is very much ſoiled*) becauſe often and too frequent doing this muſt needs wear off a little of the Colours; therefore ſtrive what you can to preſerve their firſt beauty, by kneeping them free from ſmoak, and by often ſtriking off the duſt with a Fox-Tail; as likewiſe preſerving them from Flies, by burning Brimſtone ſometimes to kill them, or by dreſſing up your Rooms with green Boughs, to which the Flies will gather themſelves, and ſo not hurt your Pictures. Sir *Hugh Platt* in the Firſt part of his *Garden of Eden*, and 17 *page*, tells us of an *Italian* Fancy for this purpoſe, by hanging in the Roof and ſides of the Room ſmall Pompions or Cucumbers ſtuck full of Barley, which will ſprout into green Spiers on which the Flyes will lodge. *Query*, Whether Veſſel of Tin made round about full of holes filled with Earth, and every hole planted with a Corn of Barley, and watered as need requires, would not be more beautiful and uſeful to this purpoſe.

Ano-

Another Note worth Obſervation is, That all Pictures (*eſpecially thoſe that are wrought with mixtures of White Lead*) are apt to tarniſh and grow ruſty, as is ſeen in all ancient Pieces; To prevent which, in the Months of *May* and *June* let your Pictures be expoſed ſometimes to the hot Sun, for this will draw off much of the tawniſh, and make the Colours more freſh and beautiful. and thus doing from year to year will preſerve them wonderfully.

Although in the beginning of this Chapter I mentioned Dials among thoſe things that are not to be refreſhed but by new Painting; yet her take notice, That I think it not convenient at all to lay new Colouring upon the old ground of a Sun-Dial (or *to draw the old Lines and Figures over again in the ſame poſture wherein they were drawn before*) but rather to take the declination anew, and according thereunto make a new Draught of your Dial, and proceed in the Painting of it in all reſpects as if it were a new Dial: For it is obſerved, That Dials which were made fifty or ſixty years ago (*which we believe went true when firſt made*) will not give the true

true Hour now, but go very falſe, which is cauſed by ſome ſecret Motion of the Earth not hitherto taken notice of, which apparently alters the declination of all Playns. If any ones requires more ſatisfaction herein, let him repair to ſome old Dial that was made many years ago, and according to the diſtance of the Subſtile from the Meridian, let him find out the declination when firſt made, as any Man, that is an Artiſt, can eaſily do; then let him take the declination of the Plain by the Sun, and he ſhall find theſe two declinations to differ conſiderably, according to the number of years contained between your obſervation and the time of the Dials firſt making; ſo that a Plain that ſtood full South, ſixty years ago, ſhall now decline ſome degrees either to the Eaſt or Weſt, which perhaps may be a Cauſe of the Variation of the Compaſs, which is found by Obſervation, to differ much in the ſame Country, in the ſpace of 50 or 60 years, as all skilled in Aſtronomy know very well.

CHAP.

CHAP. XVII.

An Experiment relating to Oyl Colours of great uſe to Travellers of ſome kinds: To the chief Officers of Camps and Armies, to Seamen and ſuch like.

THis Experiment is no other than a diſcovery of the way and myſtery of making Oyl-Cloth, now uſed for Hat-Caſes, and that is this: Take of the drying Oyl *mentioned in* Chap. 6. ſet it on the fire, and diſſolve in it ſome good roſen, or (*which is better, but dearer*) Gum-Lack; let the quantity be ſuch, as may make the Oyl thick as a Balſom, for it muſt not be ſo thin as to run about, if ſpread on a Cloath: when the Roſen or Gums are diſſolved, you may either work it of it ſelf, or add to it ſome Colour, as Verdigreaſe for a Green, or Umber for a Hair-Colour; or Indico and White for a light Blue.

This Varniſh, if ſpread on Canvas, or any other Linen Cloth, ſo that the Cloth be fully drenced and intirely glaſed over with it, and ſuffered to dry throughly, is Impenetrable for all manner of wet; and if Carriers and ſuch kind of perſons that are neceſſitated to travel in all manner of weathers, had but little light Canvas Cloaks made for them, of ſuch Cloath and Hats lined on the out-ſide with the ſame, theſe Cloaks and Hats would ſecure them from wet as well as if they remained ſtill in their own Houſes; for as I ſaid before, no wet will penetrate through it; four and twenty hours rain would make no more impreſſion upon it, than if it had never rained at all.

The Officers Tents in an Army or Camp, if covered over with this Varniſht Cloath on the top, would preſerve them as ſecurely from all wet, as the beſt Houſes, and be as warm and dry; neither will there follow any great inconvenience in decamping; for Cloath ſo Varniſhed, is almoſt as plyable as the naked Cloth, and not very much more weighty, eſpecially if the Varniſh be laid on plain, without any Colour

mixt

mixt with it; for that is both the lighter and more pliable.

The ſame advantage may Seamen reap by it, or any other perſons that muſt neceſſarily attend in ſtorms and rain.

A Sheep-Skin Boot well liquored with this Varniſh after the Boot is made, and ſo throughly done over as to lye with a glaſs on the outſide, ſhall endure more wet than the beſt Neats-Leather Boot, being alſo much more plyable, eaſy and light; the ſame may be ſaid of Shoes in great part.

The great reaſon why the Oyl-Hat-Caſe has not been more often in uſe, is by reaſon of the difficulty required to form it into Garments, and then the very Hat-Caſe themſelves do let Water in at the Seams; but this Varniſh being laid on in the Seams after the Garments are made, does ſo intirely ſecure every part, as there's no poſſibility or place for the wets admittance.

The ſame may be of advantage to abundance of other humane neceſſities, too long here to enumerate; and for ſecuring any kind of Timber Work, it equals Painting with Colours in Oyl, and much more eaſy to attain; for Lin-

ſeed Oyl and Roſen are much more eaſily melted together by boyling than Colours can any ways be ground; and being of the conſiſtance of a Balſom, works delicately with a Bruſh, and of it ſelf, without the addition of Colours, bears a body ſufficient ro ſecure all manner of Timber-work, equal to, moſt Oyl-Colours.

In the working of it there's no great skill required, if you can but uſe a Painters Bruſh; only let the matter you lay it on be throughly drenched, that the outſide may be glazed with it: if you deſire a Colour on the outſide, you need only grind a Colour with the laſt Varniſh you lay on.

CHAP.

CHAP. XVIII.

How to preſerve all bright Iron-work from ruſt and other Injuries of a moiſt and corroding air, by an Oily Varniſh.

TAke good Venetian, or for the want of that, the beſt and cleareſt common Turpentine, diſſolve it in Oyl of Turpentine, and add to it ſome good drying Linſeed Oyl, made clear by long ſtanding in the hot Sun *(for ſome uſes, the common drying Linſeed Oyl may ſerve)* mix them well together, and with this mixture, Varniſh over any ſort of bright Iron-work whatever, that is uſed about the Houſes of the Nobility and Gentry; as alſo all kind of bright Arms that is kept in Armories and other places of publick ſtate: 'Tis a certain preſerver of all ſuch Iron-work from ruſt, let it be what it will, provided it be ſuch as is not brought into common uſe, for much handling will wear it off, and heat will again diſſolve it; but for all ſuch bright

Iron-work that is uſed about either Carpenters or Joyners Work, that require not much handling, as alſo Arms, *&c.* that ſtands up for ſtate rather than preſent uſe; 'tis, as I ſaid before, an infallible Preſervative.

When you uſe this Oily Varniſh, 'tis beſt to warm it, and then with a Bruſh lay it on as thin as poſſible; this is beſt for Arms; but for other Iron-work, it may be laid on cold; in four or five days after 'tis laid on, 'twill be throughly dry.

Note, That ſuch Arms as is done over with it, may, when they come into uſe, be cleanſed from it again, by being warmed hot before a fire; for heat will diſſolve it, but Water will do it no hurt.

CHAP. XIX.

The Art of Back Painting, Mezotincto Prints, with Oyl-Colours.

THis Myſtery conſiſts chiefly in paſting the Print upon a piece of glaſs of ſuch a Size as fits the Print. Now to do this, take your Print and lay it in clean

clean Water for two Days and two Nights, *or longer, if your Print be on very ſtrong Paper*; then take it out, and lay it upon two Sheets of Paper, and cover it with two more, and let it lie there a little to ſuck out the Moiſture: In the mean time, take the Glaſs your Print is to be paſted on, and ſet it near the Fire to warm, then take *Strasburg* Turpentine and put it into a Gally-Pot, and warm it upon the Fire, then take a Hogs hair Bruſh, *the Hairs being well faſtned by wedging, as before was ſhewed*, and therewith ſpread over the Turpentine very ſmoothly on the Glaſs; then take the Print from between the Paper, and lay it upon the Glaſs, beginning firſt at one part, and ſo rub it down gently, as you go on, till it lie cloſe, and there be no Wind Bladders between, then with your Finger roll or rub off the Paper from the back ſide of the Print, till you ſee nothing but the Print left upon the Glaſs, and when this is done, ſet it by to dry, and when 'tis dry Varniſh it over with ſome White Tranſparent Varniſh, that the Print may be ſeen through it, and then it is fit for Painting.

You may, inſtead of ſoaking your Prints two Days and two Nights, roll them up and boil them for about two Hours in Water, and that will make them as fit for peeling as the other way, when rubbed with your Fingers, then having prepared your Oyl Colours, as in the preceding Work is directed, grinding them very fine, and tempering them up very ſtiff; let the backſide of the tranſparent Print be Coloured over with ſuch Colours as each particular part does require, letting the Maſter Lines of the Print ſtill guide your Pencil, ſo will each particular Colour lye fair to the Eye, on the other ſide, and look almoſt as well as a Painted-Piece, if it be done neatly.

Note, That the ſhadows of the Print are generally ſufficient for the ſhadow of every Colour, but if you deſire to give a ſhadow from your Pencil, then let the ſhadows be laid on firſt, and the other Colours after.

Note alſo, That in laying on of Colours in this kind of backſide Painting, you need not be curious in laying them on ſmooth, 'tis not at all requiſite here where the chief aim is only to have the

Colours

Colours appear well on the foreſide of the Print; and therefore the only care to be uſed in this work, is to lay Colour thick enough, that its body may ſtrike the Colour of it plainly through the Glaſs.

Some Directions for mixing of Oyl-Colour for divers purpoſes, in this Art of Colouring Prints with Oyl-Colours.

Colours for ſeveral Faces.

FOR Faces that are accounted fair, take White-lead, a little Vermillion, and a very ſmall touch of Lake.

For the Lips take more of the Vermillion and Lake than you did for the Face.

For a Brown Face take burnt Oaker and White.

For a Tawny Moor, take Cullens Earth, a little burnt Oaker, and a little White.

Colours for Hair.

For a brown Hair, mix Umber and a little Black and White.

For a yellow Hair, take Stone-Oaker, White-lead, a little Vermillion.

For a flaxen Hair, take White lead, Stone-Oaker, and a little Cullens-Earth.

Linnen.

Is done with White Lead or Cerus.

Silver.

Is done with White, a little Smalt, and ſome White Maſticote.

Gold.

Is done with Red Orpiment and White Maſticote, of each equal quantity.

Colours for Garments.

For Blue Garments the beſt Smalt and White-Lead.

For a Graſs Green, mix Verdigreaſe and a little Pink Yellow.

For a Willow-Green, mix Verdigreaſe and a very little White.

A Sea Green is made by mixing green Verditer, Pink and White-Lead.

A French Green is made by mixing Pink and Indico.

A Carnation by mixing Lake and White-Lead.

A Crimſon is made by mixing Vermillion, Lake and White.

A Scarlet is only Vermillion laid on alone.

A Cherry Colour is made by mixing Vermillion and White-Lead.

For Yellow, lay on either Yellow Orpiment, or Yellow Maſticoate; if your Yellows are more pale, then mix White with the former.

For an Orange Colour, mix Orpiment and a little Vermillion.

For a Purple, mix Smalt, Lake and White.

For a Violet, mix Biſe and Lake.

A Straw-Colour is made with White, Yellow-Oaker, and a very little Umber.

An Aſh-Colour is made by mixing Black and White.

A Cheſnut Colour is made by mixing Umber, Lake and White.

A Dove-Colour, or the Wings of an Angel, take White, a little Lake, and a little Smalt.

Colours for Trees.

For the Bodies of Trees, take Pink, Yellow, White-Lead, Yellow-Oaker, and a little Black.

For the Leaves of them that are near the Eye, take Verdigreaſe and Pink, or if darker Coloured, then take Indico and Pink.

For Leaves of Trees farther off, take Green Verditer, Pink, and White-Lead.

For them that are fartheſt of all, take Terrevert and White.

Colours for Grounds behind a Picture.

Note, That a light Hair requires a dark ground, and a dark Hair a light ground.

Ground Colours for a Picture with a light Hair, is made with Umber, White and Black.

A Ground Colour for a dark Hair is made with Umber and White.

For Ground in a Lanskip.

Take Pink, Oaker, and White, with a little Green Verditer.

For Country Houſes, at a diſtance, take White-Lead, Yellow-Oaker, and Smalt; the ſame Colour ſerves alſo for Houſes of Stone.

For Brick-Houſes or Walls, take Yellow-Oaker burnt, and White-Lead, if the Work be far off, but if near, then *India*-Red, and a little White.

For Pails of Wood or other Timber-Work, of what kind ſoever, in Country-Cottages, take Umber, White, and a little Oaker.

Sky-Colours.

Are made of Smalt and White for the higheſt Skies, more White for the lower, and Yellow mixt with a little Vermillion for the loweſt of all.

CHAP.

CHAP. XX.

The manner of Painting Cloth, or Sarſnet Shaſh Windows.

LET the Cloth or Sarſnet be firſt ſtrained tite to the Frames, and there made faſt, and when they be through dry, Varniſh them over with the following tranſparent Varniſh thus made.

Take a pound of good clear Nut-Oyl, put it into an Earthen Pipkin, and add to it half a pound of good Silver Litharage in fine Powder, ſet it on a ſmall Fire, but not to boyl, and let it ſtand hot at leaſt twelve hours, ſtirring it often in that time (*this adds a drying quality to the Oyl*) when it has ſtood thus long, pour it off from the Litharage by Inclination, then take a pound and a half of the cleareſt white Roſen, beat it to Powder, and mix it with the Oyl on a ſlow Fire, always ſtirring it till the Roſen be diſſolved; then take it off and put into it a Pound of good clear *Venus* Turpentine,

pentine, and ſtir them all well together; then with a good Bruſh let your Shaſhes be throughly Varniſhed over with this mixture, ſo that they may appear all over clear and tranſparent.

When this Varniſh is dry, then you may Paint upon them what fancy you pleaſe with Oyl Colours, but Landskip is moſt common and natural, for which purpoſe, the Colours you mix ought to be ſuch as are of a fine Body, and apt to become tranſparent.

For theſe purpoſes, Lake makes an excellent tranſparent Ruby Colour, and diſtilled Verdigreaſe makes an incomparable tranſparent Green, Orpiment makes an excellent tranſparent Gold Colour; Umber and Yellow Oaker will become indifferent tranſparent, if thinly mixt, but for the reſt, there are none that will lye clear in this work, but only according to the very thinneſs of their mixture with the Oyl.

The aforeſaid Varniſh, as it is clear of it ſelf, is an excellent Varniſh for Paper Windows, being much more tranſparent than any other Compoſition, and more laſting; for the Roſen and Turpentine being made tough, when dry,

by

by means of the Oyl mixt with it, does more powerfully reſiſt the Injuries of all weather than Oyl alone.

If any are troubled with weak Eyes, and cannot indure a bright Light, this Varniſh mixt with diſtilled Verdigreaſe, and Paper Windows, or Sarſnet ones done over with it, will make an incomparable green light, very comfortable to the ſight, and of great benefit to ſuch as love not too much brightneſs: a Note of good uſe, eſpecially to all great Students, whoſe ſight is often much impaired and weakened by poring too much upon their Books; the whiteneſs of the Paper being obſerved to be often a great Enemy to the ſight of ſome Men, the inconveniencies of which, ſuch a green Light as this now mentioned, will infallibly prevent, beyond green reading Glaſs, Spectacles, or any other contrivance, yet found out; the like benefit may ſome Tradeſmen alſo receive from it.

CHAP.

CHAP. XXI.

The whole Art and Myſtery of Colouring Maps, and other Prints, in Water Colour.

HAving, as yet, ſeen nothing publiſhed upon this Subject that is Authentick, I have thought fit for the ſake of thoſe that are inclined to Ingenuity, to ſet forth the way and manner of doing this Work, it being an excellent Recreation for thoſe Gentry, and others, who delight in the Knowledge of Maps; who by being Coloured, and the ſeveral Diviſions diſtinguiſhed one from the other by Colours of different kinds, do give a better Idea of the Countries they deſcribe, than they can poſſibly attain to uncoloured.

Now to perform this Work after the beſt manner, there muſt be provided in the firſt place a Lye made with Tartar, and a Gum-Water.

To make the Tartar Lye do thus, take two Ounces of the beſt White *Tar-*

tar,

tar, which is a ſtony Subſtance that ſticks to the ſide of the Wine Veſſels, and is ſold by the Drugiſts. Wrap it up hard and tite in half a Sheet of Brown Cap Paper, wet it throughly in Water, and put it into a clear Fire, either of Wood or Sea-cole; let it remain therein till it be red quite through, then take it out with a pair of Tongs, and put it immediately into half a Pint of Water, and with your Fingers rub it well to pieces; put it into a long narrow Glaſs, and in a Day or two the Black will all ſettle, and the Lye will become pure clear: Pour off the clear Lye into a clean Glaſs, and keep it cloſe ſtopt for uſe.

To make Gum-Water, take Three Ounces of the whiteſt and cleareſt *Gum-Araback, which is alſo ſold at the Drug-iſts*, and beat it as ſmall as you can bruiſe it; then put it into a Pint of fair Spring Water, and let it diſſolve therein, which will be much haſtened by ſhaking the Glaſs three or four times a Day very well, that the Gum that is diſſolved may mix the better with the Water that is above it: And when it is all diſſolved, if there appear any Foul-

neſs

neſs in it, ſtrain it through a Rag into a clean Earthen Diſh, and put it into a Glaſs, and ſtop it up for Uſe. *Note*, That too much of this ought not to be made at a time: For if the Gum be kept diſſolved too long in the Water, it will rot, and ſo be of no uſe; therefore obſerve to make it freſh once a Month at the fartheſt.

In the next Place, you muſt prepare or make your Colours ready for Uſe, and the beſt for this Work are thoſe that follow; Namely,

Copper-Green, and that is made thus; take a Pound of Right *French Verdigreaſe*, made at *Monpeliar*, *this being the beſt*; *for the Verdigreaſe made at any other place will fade.* To this add Three Ounces of Cream of Tartar, beat them both into a fine Pouder, and take care, while. the *Verdigreaſe* is in the pounding, to ſtop your Noſe, and hold a Bunch of fine Linnen in your Mouth to breath through, elſe the ſubtil Pouder of the *Verdigreaſe* will be apt to offend; and when this is done, mix both the Pouders in two Quarts of Water, and boil it in an Earthen Pipkin till it boil away a Quart, then ſtrain it out when cold,

cold, and put the Liquor into a Glaſs, ſtop it up, and let it ſtand to ſettle till the Liquor be very clear, ſo you will have a delicate Green: But ſometimes the *Verdigreaſe* not being always of a Goodneſs, the Colour may not be deep enough for ſome Uſes. In this Caſe, put ſome of it into a broad Earthen Diſh, and ſet it over a Chafing-Diſh of Coals, and by a gentle Heat, diminiſh ſo much of the Liquor, till by trying on a Paper *and letting of it dry*, the Colour pleaſe you: *and here you are to note*, That if it ſhine too much when dry, it is not right; for it is not rightly made except it but juſt ſhine, and if you cannot make the Colour deep enough by evaporating by Heat, the abounding Liquid, without making it ſhine too much, it were better to add ſome more Verdigreaſe, and boil it up a new, till it become a Tranſparent deep *Willow Green*. If you would make but a Pint of this, you muſt take but half the Quantities of each: And you are alſo to take notice, that this is a Colour that will keep a Year or more without decaying, if the Glaſs that contains it be cloſe ſtopt up.

The

The next Colour needful to be made, is a Stone Colour, or a Liquor of *Myrrh*, which is thus done; take a Pint of your Tartar Lye, and add to it an Ounce of *Myrrh* in Pouder, the beſt for this uſe is the blackeſt or courſeſt, and boil it till the *Myrrh* is diſſolved, which will be done in a ſmall time; let it ſettle and pour off the clear for Uſe, which you muſt keep cloſeſtopt up: This is alſo a Tincture which will keep long, and may be made fainter or deeper by boiling more of the Liquor away to make it deeper, or by adding Water to it to make it fainter. Some make alſo a Colour of Pitch like Soot, made by Wood; this Soot they boyl in Water, and when clear, is good for many Uſes, and ſerves in ſome Caſes inſtead of this Liquor of *Myrrh*.

And in the laſt Place, there is required a *Crimſon Colour* which is ſpeedily made thus. Buy at the Drugiſts ſome good *Cochinele*, about half an Ounce will go a great way. Take Thirty or Forty Grains, bruiſe them in a Gally-Pot to fine Pouder, then put to them as many Drops of the Tartar Lye as will juſt wet it, and make it give forth

its Colour; and immediately add to it half a ſpoonful of Water, or more if the Colour be yet too deep, and you will have a delicate purple Liquor or Tincture. Then take a bit of *Allum*, and with a Knife ſcrape very finely a very little of it into the Tincture, and this will take away the Purple Colour, and make it a delicate *Crimſon*. Strain this through a fine Cloath into a clean Gally-Pot, and uſe it as ſoon as you can, for this is a Colour that always looks moſt Noble when ſoon made uſe of, but it will decay if it ſtand long.

Indico is another Colour uſed in colouring of Maps. This is bought at the Colour Shops that ſell Paint, and it muſt be ground very fine on a Stone, as you do Oyl Colours, with a little Tartar Lye to make it give its Colour, and look the brighter, when 'tis ground perfect fine like a thick Syrrup, add Gum Water to it till it be thin enough for your purpoſe, and keep it in a Glaſs cloſe ſtopt up, but it will ſettle ſo, that when you uſe it you muſt ſtir it up from the Bottom.

For a Yellow, *Gumboge* is the beſt, it is ſold at Drugiſt in Lumps, and the way

way to make it fit for Uſe, is to make a little hole with a Knife in the Lump, and put into the Hole ſome Water, ſtir it well with a Pencil till the Water be either a faint or a deeper Yellow, as your occaſion requires, then pour it into a Gally-Pot, and temper up more, till you have enough for your purpoſe. Some inſtead of this Uſe French Berries, by ſome called Yellow Berries, which they put into Water with a little Pouder of *Alum*, which in a days time will draw out a delicate Yellow Tincture; the more Berries, the Yellower will the Liquor be.

Red Lead is alſo a Colour much uſed in this Work, and ſo is *Orpiment*; both which you may buy at the Colour Shops very finely ground, ſo that they need only to be tempered with Gum-Water to be fit for Uſe.

Blue Bice is alſo uſed often, which needs only to be tempered with Gum-Water, and when Men deſign to be curious, they may uſe inſtead thereof *Ultramarine*, which is the beſt and moſt glorious of all Blues, but very dear; yet ſmall Papers of it of about Two Shillings Price may be bought at ſome

Colour Shops, which if carefully uſed, will go a great way: It needs only to be tempered in a very ſmall Gally-Pot with a little Gum Water, till it lie on the Paper with a good Colour.

There is alſo an exceeding glorious Red or Crimſon Colour, called *Carmine*, which is alſo very dear, yet about Half a Crowns-worth will go a great way in the Uſes to which it is put; it needs only to be tempered with Gum-Water, and gives ſeveral degrees of Colour according as it is thicker or thinner tempered; for if it be very thin, it reſembles in Colour the Crimſon made from *Cochenele*, and may be uſed inſtead thereof, by the Gentry, to whom the Price will not be conſiderable.

Vermillion is alſo uſed in ſome Caſes. This is a glorious *Scarlet*, and needs only to be tempered with Gum-Water, for it may be bought very finely ground to Pouder at the Colour Shops; only the lighteſt coloured *Vermillion* is the beſt for this uſe; and 'tis to be noted, that this Colour ſhews much brighter when dry, if glazed over with thick Gum-Water, made *by putting Two Ounces of Gum Araback to half a Pint of Water*

Water, or leſs; which ſhould always be ready for this purpoſe.

And for ſome Uſes, burnt *Umber* ground very fine with Water as thick as poſſible, and then tempered up with Gum-Water to a due thickneſs, make a good Tranſparent Colour.

There is another Colour needful in this Work, which is a moſt pleaſant *Graſs Green*, and that is made thus, take a Lump of *Gum-Boge*, and make a little Hole in it, then put therein ſome *Copper Green*, ſtir it about with a Pencil, and from a Willow you will ſee it turn to a *Graſs Green*, which you may make deeper or lighter, as you ſtir it about a longer or a leſſer time.

Of the Practice of Colouring Maps.

The Colours being prepared as before is directed, you may proceed to Colour a Map in this manner, firſt take notice of the ſeveral Diviſions in a Map which diſtinguiſh one Kingdom from another, or one County from another, which are known by certain Lines, or Rows of Pricks, or Points of ſeveral Sizes and Shapes agreeable to the Diviſions they

are to denote. As for inſtance, *Portugal* is diſtinguiſhed from *Spain* by a row of large Points, or Pricks, and the Provinces of that Kingdom, or Shires, as we call them in *England*, are diſtinguiſhed one from another by Lines of leſſer Points or Pricks. Now if you were to colour the Kingdom of *Portugal* do thus, firſt with a ſmall Camel Hair Penſil in a Ducks Quill, colour over all the Hills within the Large prick Line that divides it from *Spain* with the *Tincture of Myrrh* very thin; then if there be any Woods, dab every Tree with the point of a very fine Penſil dipt in Graſs Green, made of *Copper Green* tempered up with *Gum Boge*, but in dipping your Pencils into any Colour, ſtroke it againſt the ſides of the Pot or Glaſs in which you put it, that the Colour may not drop from it and ſpoil your Work; then with another Pencil dipt in *Read Lead*, tempered thinly with Gum-Water, let the *Principal Cities and Towns* be done over that the Eye may more readily perceive them. Laſtly, with a Ducks Quill Pencil dip in ſome Colour, as *Copper Green*, and trace out the Bounds of one of the Provinces,

vinces, keeping the outmoſt Edge of the Pencil cloſe to the Pricks, and be careful to lay your Colours all alike, and not thicker in one place than in another, and when 'tis almoſt dry, take another clean Pencil of the ſame Size, and dip it in Water, ſtroaking the Water out well, and therewith rub upon the inſide of the coloured Line, till it take away moſt of the Colour on the edge, and make it grow faint and loſe it ſelf by degrees, and continue ſo to do till you have gone quite round; then take Yellow made of *Gum Boge*, and go round the inſide of the Pricks that divide the next Province, ſweetning over the innermoſt Side of it, when almoſt dry, with a Pencil dipt in Water, as you did before, do over the next to that with the *Crimſon Tincture* made with *Cochinele*, or thin *Carmine*, and the next to that do round with *Red-Lead*, and the next to that with *Graſs Green*, and the next to that with any of the former Colours that will ſo agree with the Work, that two joining Provinces may not be coloured with the ſame Colour, for then you could not diſtinguiſh them ſo well by ſight.

And in this Work of dividing, obſerve, That when your Boundary Lines paſs through Woods already coloured, or Hills; obſerve then, I ſay, to miſs the Colour of thoſe Woods and Hills in your drawing a Colour round the Province, and be careful alſo not to draw any Colour over the Cities or Towns that are painted Red, for that ſpoils the Beauty of it.

And when you have coloured over or divided all the Counties, then colour *the Sea-ſhoar*, and all *Lakes of Water*, if there be any, with thin *Indico*, working of that ſide of the Colour which is from the Land faint, with a wet Pencil as before was taught, and if there be any Ships, colour the Water ſhaded at the bottom with the ſame *Indico*, painting the Hull of the Ship with *Umber*, the Sails with Tincture of *Myrrh*, and the Flags with *Vermillion* or *Blue Bice*; and if they are repreſented as firing their Guns, let the fire be done with *Red Lead*, and the Smoak with very thin *Bice*, and as for the Margent *or ſquare ſtick of Degrees, as the Gravers term it*, which goes round the Map, let that be coloured either with Yellow or Red.

Red Lead, or Crimſon, none but thoſe three Colours ſerving well for this purpoſe.

As for the Compartment or Title, which conſiſts generally of ſome neat Device to ſet the Map off, and make it appear more beautiful, it may be coloured according to the Nature of it. As for inſtance, *Crowns* or any thing repreſenting Gold with Yellow, ſhadowed in the darkeſt parts of the Graving with Orpment, the Hair of Men or Women with Tincture of *Myrrh*, or if Black, with half Water half common Ink, or with burnt *Umber*; the Fleſh of Women or Boys with a very little of the Tincture of *Cochinele*, in a large Quantity of Water, and Garments either with thin Green ſhadowed with thicker, and with the Tincture of *Cochinele* made thin with Water, and ſhaded with the ſame Colour thicker, and thin *Bice*, and ſhadowed with a thicker mixture of the ſame, or with *Vermillion* ſhaded with *Carmine*. In general obſerve, That the Colour muſt be laid in the lighteſt part of all Garments, very thin and deeper in the Shades, for then the more beautiful it

wil

will appear; the thick of the ſame Colour being the moſt natural Shade for moſt Colours, except *Yellow* and *Blue*, for *Blue* ſometimes requires to be ſhaded in the darkeſt Places with a Black, or at leaſt with thick *Indico*; and *Yellow* requires *Red-Lead* or *Crimſon*, and ſometimes it appears very pleaſing when ſhaded with *Green*.

If you are to paint Clouds, do them ſometimes with Tincture of *Myrrh*; and in ſome Caſes, with a very thin Crimſon, and for Variety, you may do ſome with thin Ivory Black, ground very fine, and tempered up with much Gum-Water. Smoak is beſt repreſented with very thin *Blue Bice*, and if you are to colour any Repreſentation of Sea Waves, do it with *Indico*.

If you are to colour any Repreſentations of Land, do the lighteſt parts over with very thin Yellow that repreſents a Straw Colour, ſhading it in ſome places with Orpment; and in others let a light Green be laid, and ſhade it with a deeper Green: Rocks muſt be done with Tincture of *Myrrh*, or of *Soote*, and the Trees ſome with *Copper Green*, ſome with dark *Graſs Green*, and ſome with

with thin burnt *Umber* and *Gum-Boge* mixt; Houſes may be done with *Red-Lead*, and the Tiles with *Vermillion*, or with *Bice* to repreſent Blue Slat, Caſtles may be done with Tincture of *Myrrh* in ſome parts, in others, with thin *Red-Lead*, and the Spires and Pinacles with *Blue*.

But when all is ſaid that can be ſaid, the only way to colour Maps well, is by a Pattern done by ſome good Workman, of which the *Dutch* are eſteemed the beſt; three or four ſuch Maps coloured by a good Artiſt, is ſufficient to guide a Man in the right doing of his Work: But if he cannot obtain this, he may by a few Tryals grow a good Artiſt in a ſhort time; for this is only attained to by Practice, and if a Man does ſpoil half a ſcore Maps in order to get the knack of colouring well at laſt, there's no Man that is ingenious will grumble at it, or grudge at the Charge.

The hardeſt thing in this Art is, to know rightly how to make and prepare the Colours which here is taught faithfully: And if your Paper be good and bear the Colours well, without ſuffering them to ſink into it, all that are here men-

mentioned will lie fair and pleaſant to the Eye, and 'tis the Fairneſs of the Colours that is moſt eſteemed in this Art of Map-Painting: But if the Paper be not good and ſtrong, no Art can make the Colours lie well; therefore in buying *Maps*, chuſe thoſe that are Printed on the ſtrongeſt or thickeſt Paper: For they colour beſt, provided the Paper be well ſized, and indeed it will be found, *when we have taken the greateſt Care we can*, that Colours will lie fairer, and look more bright and pleaſant on ſome Paper, than on other ſorts, tho' they ſeem to be as ſtrong.

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